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THE TUTORIAL SYSTEM IN COLLEGE¹

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The large college has had the advantage over the small college of more opportunities and a greater cosmopolitanism. The small college has had the following advantages over the larger college: greater accessibility of the opportunities to the student, more definite and concentrated work, and a closer personal touch with his professor. These inestimable advantages the larger colleges and universities have been losing, and the great aggregate of students who flock to the larger centers of learning have been becoming less and less an organized army and more and more a mere herd. Whatever be the experience of other places, I have no hesitation in saying that the experience of Princeton University was that with the rapid student growth there came to be less and less attention given to the individual student's needs and more and more dispersion of the individual students in the masses of their fellows; so that whatever the good of the cosmopolitan college fellowship, and whatever good the student might chance to get from the larger opportunities, he was losing something priceless, namely, definiteness in his work and that close personal touch of the student with the master without which the best education cannot be obtained and never is obtained all the way from the child at the mother's knee to the highest graduate student in the most advanced subject. Pardon me if I speak with some conviction on this, for I believe it fully.

And to speak as briefly and plainly as I can of an experiment we are now making in order to recover what we believe to have been the priceless

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advantage of the small college and combine it with the cosmopolitanism, the manifold opportunity, of the larger university, it was natural, when we thought over that question, to look back to the beginnings of the American colleges, and to ask from what root we had sprung. And as we looked back and read the history of the oldest collegiate foundations, we soon discovered that one of them started with a president and two tutors and another with a president and one tutor, and another with a president who was president, faculty, and tutor all in one. But somehow that little relic of ancestral English education had been lost sight of, and we wondered whether, by turning our eyes again to the English universities, from which, after all, the American college system has sprung, we might not discover there some helpful information. Naturally we turned, to make a long story short, to the Oxford tutorial system.

It is not easy to understand Oxford, any more than it is to understand England. Oxford is not a logical, but a historical, expression. It is full of inconsistent coexistences of old and new, of lingering, apparently obsolescent modes of behavior and thinking, side by side with the newest things of modern life. You look at an Oxford building. There will be an old piece of the fourteenth or fifteenth century, somehow planted with the newer eighteenth-century work—old and new together, perhaps incongruous at first sight, and yet all blended and mellowed by the ivies and vines and softened by the effect of the climate. Such, also, is the history of Oxford in things intellectual. Originally a mass of Latin statutes governed the university, replaced in part by later statutes in English, some of them left with the old Latin titles, some all Latin, some all English, some all English, but with the ancient headline left, from reverence or forgetfulness. So, if you go to the course of study, you find still lingering mediaeval terms—the word “commencement,” which we have taken, the word “responsions,” and so you might go on to the end of the list—side by side with the newest things. And you find a surging conflict of opinion, often ending in compromise, sometimes ending in the retreat of knowledge, at other times ending in the advance of knowledge. And so the tides of Oxford life have been flowing back and forth, and yet on the whole there is an irregularly increasing intellectual gain.

Now, if it is not too much out of the way, I should like to stop an instant just to say what was the matter with Oxford, and how the tutorial system remedied that trouble. The dark age of Oxford was the eighteenth century. Read the pages of Gibbon, Swift, and Adam Smith. Anyone may look there and see how knowledge seemed to have vanished. It was a place of sinecures, of “licensed idleness,” of indifference, of intellectual

and moral decline. And yet it was the very time when Cambridge was at its brightest intellectual eminence. At the opening of the nineteenth century it occurred to one man—a real man—Evesleigh of Oriel College, that something was the matter, and the matter was that there was no guarantee of distinction to a student who did well in his examinations and no mark of reproach on him if he did ill, and, most charmingly absurd of all, there was no security against collusion between the students and the examiners. It occurred to him that the first thing to do was to reform the system of examinations, and thus straighten out the course of study somewhat. He made the attempt, and was successful in introducing a reformation of abuses that had existed. Soon there sprung up in a limited but brilliant way an intellectual revival in Oriel College, but it did not sweep the university. It was one thing to reform examinations; it was another thing to reform professors and students. It was one thing to lead the horse to the water; it was another thing to make him drink. And yet the first step in the right direction had been taken by abolishing evils connected with the system of examining and the course of study. It remained for Parliament fifty years later to make a searching investigation into the condition of the ancient university, to go into the reform of the professorate and of the Fellows, to redistribute the funds, to abolish sinecures, and to complete what Evesleigh at the beginning of the century had begun.

But still only the first part of the reform was accomplished—the better organization of the teaching staff, the course of study, and the system of examinations. What difference did it make to a pleasantly idle student what these things were, provided he was not interested? Finally—I cannot place the date of this, but give the tale as I remember it—it occurred to one man—again a real man—a young don of Balliol College, that there was no education in the best sense without the one-to-one contact, man to man, face to face. Somewhere in there, in the literal handing-on of the torch of knowledge from teacher to student, lay the secret. And so Mr. Jowett voluntarily took a few students one by one to meet him once a week and talk over their individual difficulties. He found that such and such a man was weak in his Greek syntax. He would set him a page or two of something to read, or to write him a little paper about it a week after. Another perhaps was weak in his logic, or some part of his logic. Another could not write his Latin well. Another was deficient elsewhere. He talked over the difficulties with each one separately, and made them bring him—or, rather, they were willing to bring him—each week some little attempt of their own to overcome their particular difficulties; and

this attempt he would criticize, and thus help to set them right. To make a long story short, it was soon evident that students taught in that way were surpassing other students of like natural ability, and after a brief delay—brief for Oxford—Balliol College adopted a tutorial system, and Jowett, the famous editor of Plato, became the Master of Balliol. Balliol men began sweeping the honors of the university, and to be a Balliol man was to have the blue ribbon of intellectual distinction.

The next stage was naturally that all the other colleges of Oxford, in varying modes, adopted a tutorial plan. Although the principle on which that tutorial system is founded is as old as human nature, and is commonly supposed to be a system of teaching which has existed for centuries in the University of Oxford, it is in fact about the newest thing ancient Oxford has, the most modern thing in it as a well-tested actual piece of educational machinery.

We considered the Oxford experience carefully, and wondered what could be done in an American university to produce similar results in undergraduate students. Perhaps unconsciously, perhaps in part consciously, we began repeating rapidly to a large extent the experience of the University of Oxford. First of all we proceeded to reform our own course of study. I shall not go into that subject at length. Courses of study, schedules of study, are perhaps as dry as the tariff bill or an almanac, and yet they have important uses. We have, however, come—and I will state this without debating or arguing it—to the following position: that in organizing your scheme of liberal education the four-year college course is to be retained at all hazards; secondly, that the earlier part of the course should consist mainly of prescribed studies of fundamental and general nature; thirdly, that the latter part of the course should consist of studies of which a majority lie in some large department of the student's own choice, the remaining courses being free; in other words, a system of gradual and progressive election based on a prescribed substratum. And in doing so we organized these studies under three degrees: first, the historical bachelor of arts degree, retained in its traditional significance as including a prescribed training in mathematics and science, the classical literatures, modern literature, and philosophy. Then two modern bachelor's degrees—one the degree of bachelor of science, a specifically modern liberal degree for those whose main studies lie in the scientific direction, and the other the bachelor of letters, a specifically modern degree for those whose studies lie mainly in the humanistic direction. In that way we believe we accommodate nearly all persons who may properly ask to

receive a bachelor's degree of any kind in liberal studies at the close of a four-year college course.

Then the question at once arose: How shall we not only bring the course of study to the student, but do the second thing, bring the student to the course of study? Let me speak on that as my principal theme tonight. The first thing to be done was to find the means necessary to secure the proper men to do that highly important work. President Woodrow Wilson at once appealed to the alumni of the university to give two and a half million dollars, not for bricks and mortar, not for stained-glass windows and chimes and gateways and cages and baseball fields, and all that sort of thing, which so many consider the essence of a modern university, but for the men who were to help in this teaching. He appointed a committee of fifty graduates, with a very capable chairman, Mr. Cleveland Dodge, of New York, to prosecute this canvass over the whole country. In a brief time we received subscriptions sufficient to pay the entire expense of the experiment for five years, and a part, though less than the major part, of the endowment necessary to sustain the work in perpetuity. That canvass is still going on. I want to say that the very first effect of this, the most immediately and obviously beneficial effect, was on our own alumni. They responded quickly and splendidly to President Wilson's insistent assertion that the invisible things were greater than the visible. And so they have been willingly giving their money to help on this intimate education of our students.

The next thing, after we were safe enough to go ahead, was to select the men who were to do this work. First of all we resolved that, if the thing was to succeed at all, every member of the faculty already in the faculty who was qualified should take part in it, from the highest to the lowest officer of the staff of instruction, and that we should add to them men who would have the rank of assistant professors, but the function of this close individual teaching. In doing so we spent a great deal of time, had a great deal of travel done and a great deal of conference held in the departments, and then searched the country. We were able to pay only a moderate salary for this service, valuable as it is—say \$1,500 to \$2,000. That naturally cut us off from men who were good scholars, but had incumbent on them the support of a family. I must say that seemed a pity. It seemed like encouraging celibacy again, and that is, of course, a terrible thing to do. But there we were. Again, it brought us face to face with this fact, that naturally the preceptors we should choose would be younger men as a rule, men say from twenty-eight to thirty-five years

of age—that has been about the run of it; men, however, who had had thorough education, who had shown real scholarship, who had also shown that they were accessible, engaging, interesting men, who naturally loved students. I may say that in the department of which I am a member we considered seventy-four names, out of which ten were chosen. We are fully conscious that some of these who were not chosen were not chosen solely because they had been guilty of the atrocious crime of being married, but that was their fault and not ours. Still, leaving that out of account, we made a thorough search, and as a result last year—and, if I may, let me add in the figures for this year—we have added over fifty men to the instructional force.

Now, how did we go to work in apportioning their labor, and what sort of labor is it? In the first place, let me say negatively a few things. Our preceptorial plan is not class instruction in very small divisions, excellent thing as that is. In the next place, it is not “coaching” or tutoring individual students or small groups of students to pass examinations. What is it? Let us go back a minute and consider a college class. Take any class you like—freshmen, sophomores, juniors, or seniors. Assume any number you please. Suppose we take a freshman class, say three hundred men. Let us assume they are being taught in twelve sections or divisions of twenty-five students in the classroom, which is about our practice in the freshman year. What then? How does the preceptorial work touch them?

I may say incidentally that it was clear immediately we could not do one thing—a thing, by the way, that seems to me a great advantage in the Oxford plan. We could not find preceptors or tutors who could take any given student in all his studies. Of course, you realize that this is done in Oxford. The students of the University of Oxford divide into two sets—the Passmen, those who are striving simply to get through, and the Classmen, those who are striving for honors. The Passman has a very limited range of subjects. In Oxford the student who will not work is given very little freedom—an idea which does seem to me well worthy of imitation here. Freedom is for the man who will work. The Classman is the man who will work. Very good. Your Passman enters Oxford, has his classics, his mathematics, his elements of natural philosophy and logic, and so on—practically a very limited range to begin with. Their system of education trains men who can supervise that restricted range of studies. So could our men, if that had been our mode of training. But it has not been. It would take some time to get it established, if it were necessary to establish it.

The Classman in Oxford concentrates his work in some one important field, such as modern history, *literae humaniores*, or natural science, and he has one person to guide him in that field. That is the way they provide for the Classmen.

Now, we solved our problem in the following way: Our freshmen and sophomores are to have, and do have, one hour a week with the preceptor in each leading subject. For example, freshmen who are candidates for the degree of A.B. have one hour a week preceptorially in Latin, one in Greek, one in mathematics, one in a modern language, one in English. Our freshman candidate for the degree of bachelor of science will have one preceptorial hour a week in his Latin, one in his French, one in his German, one in his mathematics, and one in his physics, and one in his English. Although it is not rigorously true—it is not quite true of freshmen—let us assume what is the fact now generally throughout the course of study that we have the fifteen-hour schedule, composed of five three-hour courses. We take one hour off the classroom instruction and give it to preceptorial work, so that in a three-hour course there will be two hours in the classroom and one hour with the preceptor.

Now let us see how the preceptorial hour works in a particular course and in the freshman year, though the unit there happens to be four hours in some subjects and two in others. How do we do it? It is mechanically practicable to take a class division of twenty-five men in any course and schedule them—say on Monday, Tuesday, Wednesday—three hours. The first and second of these hours go to class instruction, the third hour to preceptorial work. But how? In the following way: Take that division of twenty-five, break it into six little chumps of say four students each, and put six preceptors simultaneously at work during that third hour. That is an obvious, simple, mechanical device, but one which is to us of the greatest service. We can of course get any class division of twenty-five fairly homogeneous. We then divide the division into six groups, which will average four men apiece; and that is on the whole the prevailing unit in our preceptorial unit—groups of four men. We did not quite get to “blocks of five.” We should be pleased to have groups of three, if we could have enough preceptors to attend to them, or even two, or one; but we have not.

Now, it is evident that in any well-regulated time-table you can divide three hundred students in any subject into twelve homogeneous divisions of twenty-five, provided you arrange things so that each leading subject divides independently of the others, and solely according to the merits of the men in that subject. Your first or highest division will thus contain

the very finest students. Your second division will be, on the whole, the next finest set. And as you go on down your list of divisions you soon begin to get to high mediocrity, then dull mediocrity, deadly mediocrity, hopeless inferiority, and at last the abyss. At the top you have the homogeneity of knowledge as the common distinguishing mark; at the bottom you have the heterogeneity of ignorance. At the top there is no trouble, because all know, know well and know together, and go like race horses. We never have had trouble with any top division. At the bottom it is not so much a question of finding out the sum of what they know, but of finding out the character of the ignorance with which you have to deal in each case. If you can diagnose that, then you can save the lowest division.

How interesting the lowest division is! Give me the head and tail of a class, not the middle. At the top are the fine-spirited fellows, who cannot be held in—who need the rein. In the lowest division they need the spur. That lowest division, though, whatever the subject is, contains those who are most evidently, painfully, woefully in need of preceptorial instruction. Yet it contains some of the most interesting and lovable fellows that ever came to college. That lowest division contains the mature fellow, with slow mind and poor preparation, who is trying hard. It contains the young fellow who has got too quickly into college and is only half ready for the burden. It also contains the really able fellow, who has had a good preparation, but does not mean to study. Those are the three kinds. I think there are no other kinds found in the lowest division.

Well then what? Take any of those class divisions, high or low. Assume that each division of twenty-five men is as homogeneous as it be made. Then take each division and break it into six clumps, clusters, little tiny groups or sets of four students; and you are able, if you put six preceptors at work simultaneously—each with one of the clumps of four—to treat preceptorially the entire class division at the same hour. It is also possible to shift any individual back and forth from one to another of these preceptorial groups, if occasion arises. What then? During the first two or three weeks of the term the individual students in the preceptorial groups which compose that lowest division—and there is the whole crucial test, of course—usually have to be taken tandem. They are all alike in being deficient, but unlike in the kind of ignorance they show. If you have an hour for four such men, give each one fifteen minutes the first day. Perhaps a week or two later you will be able to put two of them together, and the other two will still be taken separately.

Perhaps you will find one of your colleagues has a man he would like to trade with you. Perhaps you can make the shift. Of course, these six preceptors can easily meet, talk over their little blocks of four, and in the course of a month the blocks of four may be so redistributed as to assume something of homogeneity. If, for example, it be even the man who cannot tell the difference in algebra between multiplication and addition, as I fear some cannot, or if it be the person who cannot master the irregular verbs in Latin, as even the poet Heine admitted with tears he could not—no matter who it is, we have now got hold of the means of sorting him as nearly as possible into the exact place where he belongs. And, of course, as a month passes on, or two months pass on, more and more this group of men who are badly deficient, this little set of four, have been put together, perhaps shifted around from one group into another, till they have got into just the right place, and they are being treated by some one who is guide, philosopher, friend, critic, doctor, and politician all in one; and in a short time those fellows show the result.

Now, how do they show the result? I said this was not a system of class instruction by small divisions, and that it was not a system of coaching for examination. What is it? It is not in any sense coaching or tutoring on the course of study to which the preceptorial hour is related; but it is reinforcing the course of study by instruction, so to speak, "on the side." Let us suppose a case of a student in Latin. He comes to reading his Livy. He has fallen into the Serbonian bog of trouble, namely, the subjunctive. I don't care how lamentable his difficulty, his preceptor takes him and makes the difficulty as plain as he can make it talking straight from one to the other. He sets him something to write. He sets him to "making his Latines" as—who was it? the great old schoolmaster, Roger Ascham said, "making his Latines." And so in a short time he is taken out of the bog, his feet are set on a rock, and a song of rejoicing is in his mouth. In other words, in the course in Livy the preceptorial hour is given to instruction of freshmen in the Latin language, according to the individual need of each one. The stuff that is used to teach him the language is the text of Livy, and his illustrations will be taken, his examples taken, the stuff out of which some English will be given for him to make into Latin, if you like, will be taken from Livy, and in that sense it is related directly to the course. And yet perhaps no two men, certainly no two blocks of students, have precisely the same area of instruction. The area of the preceptor's effort is the varying area of each student's special need.

Let us recapitulate for a moment. We divide the three hundred

into twelve homogeneous class divisions. We divide each class division into six preceptorial groups, according to the example I have given. Now, that is not the rule in all departments. In some departments we have not enough men to do that; but something of that sort is our aim, and to a very large degree we are realizing that aim.

How did we know the students were going to like it? We did not. When the first academic procession of the faculty took place, with the host of new preceptors added, the university turned out as though to see what sort of a new reinforcement we had secured for our intellectual football team. The curiosity with which our students watched the rejuvenated faculty was well worth looking at.

To go on with our theme: No preceptor marks his students on their preceptorial work. No student is bound to be there; but if he is not there, he will not be examined. What a combination of foreordination and election it is! If the preceptor cannot say that his preceptee—pardon the word “preceptee”—has tried to do satisfactory work during the term, the department is not likely to examine him. What a lot of trouble that saves! I have in mind, however, the first result, at the end of the first term when this plan was started last year. In one department, which enrolled seven hundred students, the total number of men who had to be excluded from examination, because they had not attended to the preceptorial work with sufficient fidelity and intelligence to satisfy the department, was only sixteen. We never had such a record in our history. Why? First, because the men found study interesting; second, because they liked the men who taught them; and, third, because they knew it was fair that the university should not waste its time on them if they did not respond.

Many interesting things have grown out of this. Students are wonderfully complex beings—frank, irreverent, loyal, careless, optimistic, adventurous, lovable—boys turning into men. They begin to establish their own traditions, what they call immemorial traditions, which are made very quickly in college life—a college generation being only four years, and the memory of a college generation being just four years long. What then? After a while the fellows get to thinking: “Well, what a really pleasant thing this is! We four are just a little club, with Professor So-and-so up in his room. If we want to smoke, we can do it.” Nothing is said about that—nothing said one way or the other. “We sit around the table. We go over questions of interest. One is set to criticizing the other, he to criticizing all of us.” What happens in the term? Perhaps somebody drops out of that group, perhaps drops out of college. For whatever reason, he has disappeared. A new one enters. He is

received with curious feelings. "What business has he to come into our group? This belongs to us. This is our privilege." I would not destroy that feeling in their minds for anything—the feeling that they have something that is their own, that they have got something worth while. That is a good thing. "And who is this man to come in?" is a very pardonable question for them to ask. How much better than if they were all scurrying to get out of the group as fast as possible. What wonderful fellows students are!

There are some tests we can mention as indicating the immediate effect of the preceptorial teaching in its first year in Princeton. One is the test of the use of books in the university library. If there is anything obvious to be said about the intellectual condition of our American students today, it is that there is a sense in which they are illiterate. Splendid fellows, but are they reading men? A man that does not like to read ought not to be called a student. How easy to read the newspapers, to read the athletic news, sometimes magazine articles, occasionally a book—a novel. But is it true that this generation is brought up to read good literature? I am not a pessimist—far from it. Yet when I see the statistics collected in various colleges showing the abysmal ignorance that exists regarding the greatest book of our literature, the English Bible, somehow I feel that we have been losing good literature in our homes, in our intercourse, in our colleges, in all our life. Now, one of the charming and delightful sides of this preceptorial question is the strong emphasis we lay on reading, particularly in the upper years, and to some extent in the lower years. Perhaps we are giving them too much to read; I fear we are. In our desire to make things work, we are crowding them a little. The university library proceeded to get plenty of sets of books, so that our students should not be compelled to spend their money too freely on the books that were set alongside of their courses. It kept account of the books that were used. The average use of the university library on the part of undergraduates the first term the preceptorial system went into effect increased heavily. I think we can say the books that were taken out in abundance were books of history, books of philosophy, books of literature, books of science—books that ought to be the natural reading of a man who calls himself a student.

A second, and even a more subtle, test is the changing character of conversation on the campus, at the so-called "eating clubs"—what a dreadful name for a club! Things intellectual are now in good form—if spoken of without affectation. I could tell stories of students whom I know well that would come only too close home. Some of them had got

in the way of thinking that it was not the thing, you know, to be studying too much; the thing was to enjoy your good comradeship; to study some, as much as might become a gentleman—no more; but not to throw yourself heart and soul into the best knowledge, not to make the acquaintance of the great masters of thought and fancy, not to open the mind, but to grow up, as one very wise English critic said, with “undeveloped mind,” with boys’ minds in men’s bodies. That is changing. The talk is more and more of things intellectual. Even tangents and cosines sometimes fly around the campus, I don’t mean for a moment to say that they won’t talk a lot of other things; far from it. I do mean to say that there is some talk of these things daily at the table, in the walking by twos and threes, in animated informal discussion—just the thing we want. And out of that is coming—what? I fully believe there is coming the recovery of the lost art of conversation.

Then a third thing, and I have done. Perhaps the most visibly notable thing is the effect on the university when evening comes. A great number of lights in the rooms; the comparative absence of strolling, roaming crowds; the greater quietude; the general air. What shall I say? Is it the atmosphere of study that is brooding and settling over the old halls in the evening? I think it is.

Now, ladies and gentlemen, as far as a man can try who believes in a thing so much that he is in danger of speaking as an advocate rather than as a judge, I have tried to state fairly, if I could, the results of our first year. It has succeeded beyond what we expected. It has not fully succeeded yet. Many difficulties arise from the first application that have still to be worked out. But we are so encouraged as to believe that we are recovering, at least for Princeton, the lost priceless benefit of the small college in the larger university. If so, we somehow feel that we are doing the rank and file of our students a greater service than by any other device we can think of to put in operation—any device that is in any way within our reach.

SMALL VS. LARGE COLLEGES¹

WILLIAM J. TUCKER
President of Dartmouth College

Mr. President, and Ladies and Gentlemen: Professor Park, of Andover, used to divide one's theological holdings into two classes—those for which a man would go to the stake, and those for which a man would not go to the stake. I announce in advance that I am not prepared to go to the stake on the size of a college. The discussion which I am asked to open has, however, a certain educational interest, and the discussion may run out into questions of educational importance.

I note at the beginning that there are two conditions which have created and which still maintain the small college, which are not strictly educational. The small college exists today in certain localities for strictly social reasons, or is built up under social conditions. Oxford and Cambridge exist primarily in the forms in which they exist to conserve the social order of England. The process of selection is a very careful process, as you well know, beginning in the great public schools of England, but carried on with very great care as men draw near the different colleges; and once there the process is continued with the same extreme solicitude. I think that of the present Liberal cabinet of twenty-two men, eleven are graduates from Oxford and five from Balliol, and presumably the others, with the exception of John Burns, are graduates from other English universities. When Dr. Caird left his chair of philosophy in Scotland to take the place of Dr. Jowett, the controlling motive, as I understand through Professor George H. Palmer, was that he might continue the prestige of Balliol in making Balliol men rulers of India, and the process is not so much by teaching them philosophy as he taught it in Scotland as in meeting some one man every day, primarily in English composition, but with a view to personal influence.

The second condition which creates and maintains the small college, acting on the same principle, is the religious condition. The various denominations in this country have established colleges for two reasons: some of them to develop the intellectual standard of the denomination, and some of them to preserve, as they think it necessary, the more strict religious character of education. I visited not long since a New England

¹ Read before the New England Association of Colleges and Preparatory Schools, October, 1906.

college established not more than forty years ago to develop the intellectual character of the religious community with which the college was connected. The work has been very notably done. We are quite familiar with colleges which are still held to preserve the religious character of education according to the desire of those who control.

Now, whether colleges are established to conserve certain social conditions, as in England, or whether they are established to meet certain religious conditions, as in the newer parts of this country, the very object for which they are established limits the number of students. A college established to meet a certain social order must adjust itself in numbers to that end, and very few colleges outgrow specifically religious control for specifically religious ends by any very large proportion of numbers.

I have mentioned these two conditions that we may set them aside in the discussion of this question, presuming that the discussion of this question has to do entirely with that which is strictly educational. We are obliged, then, to reach the definition of the small college educationally. I know of but one definition which can be given, of but one reason which justifies the small college, considered in its purely educational life; and that is that every student shall come into immediate and constant contact with the mind of a master, one or many. The assumed advantage of the small college is that immaturity is under the constant impact of maturity. That, I suppose, is what all our older graduates mean when they speak of the college of their time, unless their minds happen to be specially inflamed at the time either by electives or by athletics. That, I suppose, is what Mr. Charles Francis Adams means very largely in his discussion of the small college—the recognition of the one fact that men are taught, according to the conception of the small college, as every man comes under the immediate and constant influence of the master-mind, be that mind one or many, and that whenever you depart from that standard by introducing intermediate minds, minds in the intermediate stage of maturity, you have departed from the essential idea of the small college and that which alone justifies its existence. There are fifteen or twenty departments of instruction, as you may reckon, in a college curriculum. That would require as many professors of full standing. They might have a certain amount of assistance. But the principle holds rigidly that under any definition of the small college the number of students shall not exceed that number which can be reached definitely and continuously by men in full standing in instruction. The moment you depart from that definition I do not know that you have any definition whatever that determines the number of the small college.

Accepting this, then, as the definition of the small college, we are met at once by the fact that the small college in a democracy is no longer practicable. The small college of the sort which I have described can exist only by exception, cannot exist as the prevailing type—for two reasons: because of its cost financially, and because of its cost in democratic principles. It cannot exist as the prevailing type because of its cost financially. It will require a very great and a very constant duplication of the college plant; and today the college plant is a very large and a very costly affair, consisting of far more than the aggregate of the salaries of the best instructors. When the equipment of a college is reckoned with, and the cost of duplicating that equipment to make a college, say, of three hundred men or women, you at once see that the cost far exceeds any probability of realization. And we are to remember that in reckoning the cost of collegiate instruction we come back after all to the standard which is set by the state colleges and universities; for they rest upon taxation, and taxation determines very largely the grade of expense. We may have our largely and richly endowed colleges and universities, but still the principle comes back practically to the cost, which in one form or another is represented by taxation. We cannot get very far beyond the limit which our people will bear in direct or indirect taxation for the support of colleges and universities.

The small college, as the prevailing type to which I have referred, is impracticable today when considered with reference to democratic principles. How are you to hold a college at the number which the small college represents? It must be in one of three ways. It must be by lifting the standard so that only a portion of those prepared by the public-school system to enter college can enter. That would create in time an aristocracy of a certain type of scholarship. You may limit it through the increase of the cost of instruction by increasing tuition. That in time would allow only the sons of rich men. You may limit it by reducing the accommodations which can be provided in one way or another for students, and there again you reach precisely the same end. It is a very much more difficult thing, ladies and gentlemen, to reduce a college than it is to enlarge a college, and do the work consistently. I do not understand how a college under the natural laws of growth can be reduced, except in violation of some one of the principles of a democracy, the college itself existing under the incentives and under the development of a democracy. Whichever way one turns for a method, one is confronted by the very serious cost of those democratic principles which are building up our colleges, and for which our colleges in large measure exist.

If you ask in this connection the question whether too many are not

seeking a college education, I am of two minds in that matter. I believe that every boy, even though he may have the disadvantage of certain social distractions, ought to have the chance of college life. I am equally of the opinion that any such young fellow ought to pass under very severe tests in working out his chance. I would not discriminate against the boy who is sent to college for social reasons, provided he is prepared to enter; but once there I would hold him to rigid conditions of college work; I would use the pruning-knife freely. But I believe that we must give the chance clearly and equally to all, without respect to rich or poor. Just now the tendency, almost necessarily, is to shut the college in the face of the rich man's son; that is, we shut the college in the face of the man who is supposed to be there without a purpose, in distinction from the man who comes there with a purpose. I would be careful how we shut the door in the face of any man, but I would be very careful that we allow no man once within to loaf on his chance. I would give him a quick, fair chance, and then I would have done with him. The only way in which we can deal fairly in a democracy is to deal precisely with the son of one man as we would deal with the son of another, provided both meet the conditions of entrance; but, once within, the same principle must hold good, and it must cut resolutely and squarely all round. So that, while I think too many today are coming to colleges under purely social incentives—some for the sake of representing social advance on the part of the family, some to get a larger amount of social enjoyment—I believe that this trouble can be very quickly cured if our colleges see to it that no man, from whatever motive he may have come, finds any place for sheer loafing.

How now have we really met the difficulty which confronts us in our principles and methods of education as related to college life? We have admitted our ideal as to what college training should be. We found that ideal as represented by the small college of the type to which I have referred impracticable in a democracy. What have we been doing, and what are we doing, to meet that difficulty? We have met it in one way, and we are beginning to meet it in another way. The two ways will probably run parallel until they work themselves out. We have met the difficulty, first, by merging the college in the university; that is, we have allowed our colleges to make a somewhat heterogeneous growth. We have not asked too many educational questions as they have been on the way to growth, but have studied economy, and the aggregation of undergraduate life and of professional life and of graduate life has been allowed. In some places it has been the result of more careful study than in other places, but the aggregation has taken place, and the college has been in very many instances

under the pressure of numbers merged in the university, and has taken university methods. University methods of instruction have prevailed, and university methods pertaining to social conduct have prevailed.

Now, it goes without saying that there are certain advantages in this method. No one can shut his eyes to them. The university ought to be the place where there are more master-minds than can be found anywhere else. The university ought to be the place where there is a larger increase than anywhere else in the motive power of teaching. If there are more master-minds there, and if those master-minds are incited by research as well as by teaching, there ought to be an undefined intellectual stimulus coming from that body of men; there ought to be a fine intellectual atmosphere associated with the university, whatever may be the specific objects toward which instruction is directed; and there ought to be, and I think there is, a certain influence coming from the simple power of numbers. We have virtually turned the argument about, so that, whereas in the small college a man working in a group was incited by his group, we have now said that we will take the risk of overpowering a man by numbers, that he may gain somewhere out of the multitude the stimulus for himself personally.

The essential difficulty, as I find it, in this method of training as applied to undergraduate life, is that the university is purely and simply individualistic as an educational power. It must be so. It seeks in all possible ways to find out the individual man, and it seeks in all possible ways to give that individual man most perfect freedom. If he does not use his freedom rightly, let him go. The whole basis of university training is and must be purely and simply individualistic. I do not believe that that basis of training will fit the average man of from eighteen to twenty-two. It will fit that same man afterward, should he go on, and it will fit the exceptional man within that period, and even perhaps earlier; but the average man coming up out of a democracy, I believe, needs to come under other influences than those of a purely stimulating individualistic form and expression.

We have come, then, to another method of dealing with this problem, and that method has been in the attempt to recover, so far as possible and practicable under present conditions, the original college idea. That attempt at recovery is expressing itself, so far as I can see, in these three forms: In the first place, it is greatly restricting, logically and educationally, the elective idea. Several universities have applied to undergraduate life what you know very well as the group system, which is a definite and clearly defined restriction of the elective system. It is far in principle as in method from the old prescribed system, but it does represent the attempt to recover

the college idea, in the fact that it puts a man under the stimulus of restricted, as well as under the stimulus of perfectly free and undefined, work.

The second form of this method is in the attempt which is being made to enlarge and develop the teaching force, with the view to very much closer teaching. This, I suppose, is the Princeton system, of which we shall hear tonight, with which we are familiar in some of its aspects. But the whole aim and end of it, or at least the evident aim and end of it, is to bring about what I have termed closer teaching—that teaching which represents the impact of one trained mind near enough to be in sympathy with the minds upon which it acts. Compare undergraduate life, say, at the University of Columbia, and undergraduate life at Princeton, and you see the very marked distinction between the methods as they are at work today.

And the third attempt is in the building-up of what I may term the independent college, that is, the college where undergraduate life is somewhat distinct and separate, or at least in overpowering force, as compared with graduate and professional life. The real question, it seems to me, is, after all—when you leave the question of method and enter upon questions of external condition or of numerical value—whether you will have your undergraduate body by itself or existing in the university in rather overpowering force, as at Princeton, and perhaps at Yale; or whether you will have the university idea overpowering the undergraduate or collegiate idea. As you rate your two ideas in this respect, you see the significance, I think, of the attempt which is being made to hold the college idea in its integrity by developing undergraduate life to the largest possible extent which the first academic degree allows, insisting that before a man crosses the A. B. or B. S. line he shall have filled out the conception of those degrees to the full, and that he shall do it under conditions which represent not so much the individualistic idea as the more social and collective idea which the college of old time represented, and which the college idea stands permanently to represent. Certainly it is a question as befitting a very large class of men to whom that degree will be the only degree which they will receive. I have not the statistics before me; in fact, I never have carefully investigated the subject; but I think it is safe to say that before the decade is over more than half of all the undergraduates in men's colleges will receive the undergraduate degree as the only degree, that more than half will never go on to any second degree, and that half, and probably in increasing proportion, will represent the higher education in America. The question is with reference to the nature of the training for those men, as well as for men who are to go on to other and more advanced and more

distinct degrees. So that I believe that, in the second general attempt which is being made to illustrate the significance of the college idea itself, we are to keep continually in mind the fact that we are to make the college degree stand for its best, and to equip the man to the best advantage who goes on to take any subsequent degree.

I have simply, Mr. President, opened in the way of brief outline this question, not, as I conceive, as I said at the outset, one of the burning questions in our educational work, but a question which is one of very great interest; a question which can run out into questions of very much importance, which, as it may excite any discussion, I shall be happy to take part in later as the discussion may proceed.

[Following a discussion of the foregoing paper, President Tucker continued]: There is one party to this discussion that has not been heard from—the individual college. I think that a college is a thing of nature and grows according to its own laws. There are colleges that have for various reasons, growing out of history or of environment, or from some particular circumstance, a future which other colleges, having different traditions or a different environment, cannot expect. So that, whatever we may say about colleges, big or little, or however we may define colleges in various ways, it is the glory of our American institutions, especially the older ones, that each one has a very definite, and what is to it a very sacred, life of its own, and that it will act according to its own life; that it will abide in certain ideals, whatever men may say or not say, or that it will depart from certain accepted ideals, whatever men may say or may not say. The inherent power, in other words, lies in every strong institution in this country to do about as it has a mind to do, with due respect to the great and necessary laws of the higher education.

There is this also to be said in reference to the relative effect of the great institutions and the smaller institutions upon the instructor and upon the student. I think that in almost every way the advantage to the instructor lies in the greater institution, the stimulus which comes from great facilities and the stimulus which comes from contact with a sufficient number of minds working toward a certain well-defined and long end, and the stimulus which comes from great variety of interest. All of these various stimulating influences go to the instructor in the largest possible institution, so that I do not wonder that every instructor seeks the largest field, quite irrespective of any advance in salary, because of certain facilities and associations which are personally and professionally helpful to him. It does not follow by any means that the same condition acts upon the student. Our institutions of learning are more than institutions of learning; and, as

a fact, they affect students in other ways and quite as influentially as in the effect which they produce upon them as scholars. The scholar pure and simple has his advantages commensurate with those of the instructor in the great schools; but those influences which somehow work upon a man to stimulate his personal ambitions and to lead him toward a very high personal career, outside scholarship, do, as a matter of fact, according to the history of this country, seem to take effect, I do not know how or why, in smaller institutions. I am surprised to find that there is not an institution in the West, South, anywhere, so small that it has not produced one or more men of very great national importance, it may be of tremendous national importance; and it seems to me—I may overestimate it—that a large proportion of men of national importance have come from very small institutions. So that I think that we cannot reason in precisely the same way as to the effect of a great institution, with its equipment and all its stimulating power coming from intercourse, upon the instructor and upon the student; for the student, the average student, I will not say is impervious to all those influences, but they do not affect him in any such way as they affect the instructor himself. This effect of a certain kind of provincialism on certain minds is so marked in history, in the history of the provincial nations as compared with the history of the great nations, it is so marked in literature, and it is so marked in politics, that there is a subtle law somewhere that we have not touched upon, and which we are not reaching when we are discussing this whole question purely in the light of scholarship. I think the relation of the university to the instructor is a very different thing from the relation of the university or the college of one size or another upon the student himself. He somehow finds out the influences that make and that start him on a great career in very unexpected places and from very unexpected sources.

As to the social conditions in colleges, I quite agree with what has been said, that you may expect moralizing influences from restrictions that never take effect, and that you may expect demoralizing influences from widening associations that do not take effect. I think that the mere question of environment is a very small and a very impracticable way of judging of the moral effect of an institution. If an institution is not true enough and big enough in its moral outlook and in all its conception of education to affect men directly and vitally itself, it cannot get off by itself into any narrow environment where it can do the business. If it is vital, it cannot lose itself if it gets into any great environment. It lies in the life itself of the institution. That tells the story every minute upon the men. If it is good, the men feel it; if it is indifferent, the men suffer from the lack

of moral power. The questions of environment and of bigness and smallness, all of those things, seem to me to be very indifferent questions in treating of the social life, so far as we attempt to describe it as a moral life.

In answer to the question which Mr. Knox has put, I wish that there was something in our American life which might give us a clue to the practicability of the subdivision of great institutions, by which the traditions of those institutions could be preserved, and at the same time so diffused through separate organizations as to give the advantage of the English college. I looked in vain for practical suggestions in that direction in Mr. Adams' address, although his mind seemed to work quite strongly in that direction. I have failed to see how Harvard, or Yale, or any of the older and greater universities, could be subdivided in that way, and I have failed to see how distinct institutions could start under one great endowment by a mechanical device. Suppose any man who wanted to endow an institution with \$20,000,000 should say: "I will give \$5,000,000 to one of four colleges to start with." I do not know whether it would work or not. I can see that, if there could be any possibility by which men could combine, or by which any group of colleges could grow up out of the sacrifices of the old time, and be so mutually related that they would have a common tradition and yet individual traditions, we might get the result; but how to unload all that Harvard carries in its unit in such a way as to distribute properly, giving this portion and that portion to any separate body, I cannot quite see. Nor can I see any better how we can start from separate roots, except by properly spacing them in time, so that each would have the opportunity in a new institution to get its own proper setting. I should like to see the experiment tried. I wish it were possible to realize something of that great advantage which the English institutions have.

LIMITED SEGREGATION

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No doubt the fact that boys and girls are being taught in separate classes in one of the Chicago high schools is a source of regret to many and a source of alarm to a few. It is not at all strange that the experiment has been called reactionary, and even a blow to the progress of woman. It is to be hoped, however, that a little explanation of what is really being done, together with a frank statement of the results aimed at, may at least remove any fears that exist in the minds of the readers of this article, as to the motives behind the movement.

The term "segregation" itself is an unfortunate one, as it immediately raises a wall between the sexes, and seems to threaten the freedom of woman. The word "limited" has therefore been prefixed, to indicate that the separation of the sexes is only partial. If some other word could be found that would indicate that the sexes were separated only during recitations, and during only the first part of adolescence, it would be a fortunate thing for the work undertaken; but no one has been able to find a more suitable name than the one in use, viz., "limited segregation."

It has seemed to me for many years that the present method of educational training for boys and girls in their early teens is falling far short of the needs of secondary education. To be sure, splendid results have come from the healthful intellectual and social relations of young people in a coeducational school; but the social relations have been of far greater benefit than the intellectual. Before there were coeducational schools, there were segregated schools, or boys' schools and girls' schools. It was considered improper for boys and girls to associate together, to converse together, to go in society together, or even to see each other. There was no particular concern about the peculiar trend of mind that marks the typical youth at the dawn of that most impressionable period of life, when a sexless

being is transformed into an adult. The annals of such institutions are full of accounts of secret meetings, secret correspondence, or even more serious matters.

The oft-repeated criticism that "boys in boys' schools become rude and boisterous and girls in girls' schools, silly and sentimental," undoubtedly has some foundation. President Stanley Hall thinks these traits desirable during this age. Be this as it may, economy in maintaining the public high schools, more than any other reason, led to the almost universal practice of coeducation. At first the boys were seated at one side of the room and the girls at the other, facing each other, with a wide aisle between; but they recited in the same classes. Then economy of space, offered by the modern school desk, brought all facing the teacher, with uniform aisles and the pupils alphabetically arranged. Thus it is that economic laws which opposed the education of woman in one instance served to emancipate her in another. It was found that the social relations, when healthful, were beneficial in training the wild, spontaneous nature of the boy and in bringing out the timid, retiring nature of the girl. It was a great triumph for woman when she secured the right to an equal opportunity with man for intellectual and social freedom, and in some states political equality. I would be the last person to deprive her of the fruits of this splendid victory; but may we not find that equal rights do not mean identical rights, and may it not be possible that, having gained this vantage ground, a higher field of opportunity and complete emancipation may be found; not in identical education, but in a special training, equal, parallel, and complementary?

It seems to me that, aside from economy, the chief advantages of coeducation are the healthful social relations of young people. I speak entirely of pupils in their early teens, as I have had no experience with those of college age. The home life of children is the ideal to be kept before us. It is only a partial view of coeducation that leads to the observation that, since boys and girls are reared in the same family, they should be taught in the same classes. Few parents indeed find it desirable to provide the same books, the same games and amusements, or the same home duties for their sons and daughters. That some parents teach their sons to sew and cook,

and their daughters to run the plane and saw, proves only that some parents have a quarrel with Nature rather than with custom.

In all this discussion let us keep in mind natural, typical, young people between the ages of thirteen and seventeen; and by "typical" I do not mean the average boy of a certain family or school. Many influences tend to modify the average; but, taking boys in general as a class in their early teens and comparing them with girls of the same ages, we see certain characteristic differences. Having recognized the leading differences in mental traits, we look for common characteristics of each class. The larger the number of boys compared, the truer will our type be. That A or B differs from his type proves nothing against limited segregation. There are boys whose mental traits would put them in a girls' class and girls who conform to the boy type; but these are far in the minority. We have heretofore laid so much stress upon the "woman wrangler" in mathematics that we have lost sight of the fact that she is the rare exception. If we would serve the interests of far the greatest number, we should recognize the fact that Nature is making a supreme effort to differentiate her boys and girls so that they may perform different functions, not only physical, but mental; not identical, but equal in importance, parallel, and complementary.

Let no one infer from this that the freedom of woman should be so restricted that she could not choose a profession or engage in a line of work hitherto considered man's exclusive field; but let us simply keep in mind that the vast majority of our girls are to become home-keepers and not lawyers. Instead of holding before all our girls that the highest object of education for them is to become professional women or business women, let us exalt, if possible, the sacred privilege of home-making.

Long before psychologists recognized any difference in the rate of growth of boys and girls, common law recognized the fact that a girl passes her period of development known as adolescence more rapidly than a boy, so that a girl of eighteen is considered capable of holding property in her own name, while a boy is not so recognized till the age of twenty-one. Men usually choose wives from two to five years younger than themselves, thus recognizing the same fact of earlier development of women. The average girl begins the

changes that transform her from a child to an adult woman at the age of thirteen. At this period she is taller than a boy of the same age. The boy does not begin his rapid growth and change till fifteen or sixteen, when he passes the girl in height. As children of fourteen enter the high school, the girl is from one to two years more mature than the boy. She is already a woman in seriousness of purpose, in power of application, and in womanly instincts. He is but a playful little fellow, not yet weaned from marbles and pegtops. During his first two years in high school he begins to grow rapidly. Indeed, so rapid are his physical changes that he finds himself unable to concentrate his mind upon anything. He needs more sleep and fresh air than ever before. Nature makes such drafts upon his stomach that he can do little else than eat, sleep, and exercise. No wonder most boys during these two or three years earn the title of "that lazy boy." The girl's listless, weary period was more brief and occurred one or two years before she entered high school. The boy, during his first two years in high school, finds himself unable to carry his work beside his more mature sisters. During an experience of twenty-five years, 20 per cent. of the girls who graduated from my high school attained an average of 90 per cent. in all their studies, while only 2 per cent. of the boy graduates during the same period attained such a grade.

President Stanley Hall, who has written a classic on *Adolescence*, says:

Divergence is most marked and sudden in the early teens. At this age, by almost world-wide consent, boys and girls separate for a time, and lead their lives during this most critical period more or less apart, at least for a few years, until the ferment of mind and body, which results in maturity of function then born and culminating in nubility, has done its work. The family and home abundantly recognize this tendency. At twelve or fourteen brothers and sisters develop a life more independent of each other than before. The home occupations differ as do their plays, games, tastes. History, anthropology, and sociology, as well as home life, abundantly illustrate this. This is normal and biological. . . . We should respect the law of sexual differences and not forget that motherhood is a very different thing from fatherhood. Neither sex should copy or set pattern to the other, but all parts should be played harmoniously and clearly in the sex symphony.

Now add to this difference in maturity the fact that there are fifty-nine girls to every forty-one boys in the high schools of the

United States, and that in many schools there are four to one, and it becomes more apparent that we need to carry the grading system far enough to divide the few, immature boys from the many, serious-minded, more mature girls of a school. I would not have them attend separate schools, because of the loss of social influence upon each other; but I would grade them by sex in order to put those of like mind and purpose together. The social relations would be more restricted than before, it is true, but still sufficient to preserve the advantages recognized in coeducational schools.

Thus far I have spoken chiefly of the difference in time and rate of development. Let us turn now to fundamental differences in intellectual traits. The typical boy of fourteen does not enjoy set tasks, especially those that require patience and memory work. He delights in experiments. He chafes under restraints and often prefers to do things the wrong way, if, in doing so, he can be independent. He is so independent of authority that he is sometimes dismissed from school, and even from home, for disobedience. In the classroom he makes up, to some extent, for lack of preparation by being very attentive. On the written tests he usually falls pretty flat, because a bright, attentive eye or a little general talk will not so readily conceal lack of knowledge; and even if he knows the subject pretty well, he does not like to spend time writing it out in full. Tried by the girl-standard, he is very deficient, and certainly earns the reputation of being "a lazy boy." If he works with the energy of a steam engine while building a boat or in a game of football, he still fails to redeem himself from the reputation he has made in the girls' classroom. I say the girls' classroom because I think the class has gone through an unintentional evolution to suit the needs of those in the majority of numbers and maturity of mind.

The girl of the same age is more tractable; she will take the advice of her teachers and parents as to what she should do and the way to do it. She is neat and painstaking. She delights in disciplinary studies, and especially in language and literature. Nature has bestowed on her some rare gifts. She has instincts and intuitions that seldom manifest themselves in the boy, and if her logical powers are faulty, she is as capable of arriving at a correct conclusion and more quickly than he can. Her sympathies are keener and her tastes

more refined. Tried by man's standard for generations, woman was regarded by him as an inferior being. Man even now is apt to regard the intuitions of women of little value unless they can be reduced to a logical form, but alas for impetuous man, if not often held in check by the instincts and intuitions of a true wife or mother! Drummond suggests that "woman once"—in prehistoric time—"domesticated man." That is, woman, with the accumulated wisdom of ancestry, which we call instinct, and the subjective insight into the forgotten past, which we call intuition, was able to make better use of the experiences of the race than impulsive, headstrong, independent man, depending upon reason for his guidance. Her gentler nature tamed and subdued his wild nature, and so man became a domestic animal. There still remains much for her to do. Nature intends her to be the conservator of all that is good and helpful in the advancement of the race. She holds the keys to the treasure-house of the past. She keeps in check the impetuous, venturesome spirit of man.

Nature has made no mistake in so constituting our children that the boy begins that marvelous change that transforms his physical and mental being into maturity several years later than his sister, nor is there any mistake that she completes her growth several years sooner. Nature intends him to be the bread-winner, the discoverer, the inventor, the mechanic, the jurist, the defender of the home and nation. Every trait of the boy-nature prompts in these directions. It is only when we try to thwart nature by making our boys and girls alike that mistakes occur. If it is a fair assumption that man is to be pre-eminently the provider, the discoverer, the inventor, and woman the home-keeper, the care-taker, the child-trainer, the virtue-lover, the guardian of useful experiences of the race, how are we best to train each for his or her life-work? If the sexes are endowed exactly alike and are to perform such very different functions, surely they each need a different training; and if they are differently endowed, as I believe most people admit, then still they need different treatment, whether they are to perform different or identical functions. Is a creature endowed by nature with marvelous intuitions to have these powers crippled by a course in higher mathematics or other forms of logic? Is imagination strengthened by a long course in

mechanics? Is the inventive faculty to be quickened by rules of grammar? Is the genius for discovery and invention strengthened by herding boys in the graveyards of the past? Yet these are our traditional methods. We teach our boys and girls the same studies in the same way.

Turning now to the physical side again, it is a fact long deplored by physicians that we neglect to instruct these young people upon matters of the greatest importance, not only for their own health and comfort, but for the good of the race itself. Few teachers would dare to venture into this field in a mixed class, and if they should, their language must be so guarded that there is great probability of being misunderstood or of giving wrong impressions to an imagination already on fire with curiosity. Sensitive minds make undue personal applications, and coarse minds turn every reference to sex relations into obscene pictures. There is but one solution of this difficult but important problem, and that is through segregation, with plain talks in straightforward, Anglo-Saxon language.

Superintendent Smith, of St. Paul, says in his last annual report that "no thoughtful teacher escapes an anxious feeling concerning the health of girl students, and parents and physicians know that they are often overwrought and nervously deranged. Under the same course of instruction, we do not hear that boys are breaking down or suffering in health." The pressure needed in a mixed class to get fair preparation out of the typical boy will drive the typical girl to nervous prostration.

Turning now to the practical side of the work, let us see how it works. In January of last year I obtained the consent of the board of education to separate the mid-year entering class into girls' classes and boys' classes. If the hundred-odd entering pupils in this class could have been kept by themselves, the experiment would have been a much more satisfactory; but we were obliged to add to their numbers about thirty pupils who had failed in two or more studies. All were assigned to three rooms, just as they came from the grammar schools, boys and girls together. When the bell rang for passing to recitations, the boys went to one class and the girls to another. It was not possible to separate them in all their classes, however,

because the numbers were too small to do so. The following segregated classes were formed:

Latin.....one girls' class and one boys' class
 German.....one girls' class and one boys' class
 Physical geography.....one girls' class and one boys' class
 Algebra.....two girls' classes and one boys' class
 English.....two girls' classes and one boys' class

Some mixed classes were formed in addition to these.

Of the twelve teachers who taught these segregated classes, seven were women and five were men. This is about the ratio of men and women teachers in the school. All Latin and German were taught by women, and all physical geography by men. One girls' algebra class and two girls' English classes were taught by women. One boys' algebra class and one boys' English class were taught by men, and one girls' algebra class was taught by a man. This gave sufficient variety to insure fair returns. The following will show that the number of boys who carried this work successfully compares very favorably with the girls, a fact not usually found in mixed classes. In order not to have the experiment spoiled by the record of those who failed the previous semester and were turned back into these classes, their records were excluded.

The number of February pupils in the various subjects together with certain other information will be found in the following table:

Sex	Original Number	Subject	Sex of Teacher	Left School or Dropped Subject	Number Who Passed the Course	Per cent. of Those in Class Who Passed
Boys.....	21	English	Man	3	13	72
Girls.....	38	English	Woman	4	29	86
Girls.....	21	English	Woman	4	17	100
Boys.....	15	Latin	Woman	4	10	90
Girls.....	22	Latin	Woman	4	12	66
Boys.....	19	German	Woman	4	13	96
Girls.....	21	Latin	Woman	7	11	78
Girls.....	36	German.	Woman	6	25	80
Boys.....	23	Algebra	Man	5	16	88
Girls.....	29	Algebra	Man	5	18	79
Girls.....	31	Algebra	Woman	3	15	53
Boys.....	21	Ph. Geog.	Man	3	17	94
Girls.....	36	Ph. Geog.	Man	6	20	96

The twelve teachers were asked to report their opinions upon the following questions:

In your judgment how do these classes compare with mixed classes in—

SCHOLARSHIP

Sex of Teacher	Better	The Same	Worse
BOYS' CLASSES—			
Man.....	3	0	0
Woman.....	1	1	0
GIRLS' CLASSES—			
Man.....	1	1	0
Woman.....	1	3	1

ATTENTION

BOYS' CLASSES—			
Man.....	3	0	0
Woman.....	0	1	1
GIRLS' CLASSES—			
Man.....	1	1	0
Woman.....	1	2	2

DEPORTMENT

BOYS' CLASSES—			
Man.....	1	2	0
Woman.....	0	1	1
GIRLS' CLASSES—			
Man.....	2	0	0
Woman.....	3	1	1

Do you find any advantage in segregation?

Men.....	Yes 5	No 0
Women.....	Yes 4	No 3

It will be seen from the tabulated statement that a greater percentage of the boys than of the girls carried their foreign language successfully—a place where boys usually fail. The work was slightly modified, and if high marks had been considered rather than numbers carrying above 75 per cent., the girls would have made a better showing. In mathematics the boys' classes excelled both in numbers that passed and in higher marks. In physical geography the work was quite a little modified to meet the needs of each.

In addition to the report of the twelve teachers I should like to add some observations of my own:

1. It will require stronger teachers to teach segregated classes than mixed classes.

a) Stronger in discipline, because of the intenser spirit of a class of pupils more nearly of one mind. In boys' classes they tend to rush headlong in any direction they happen to be interested to go, whether in conduct, scholarship, or sport. Girls are passive and inert in the oral recitation, preferring to let others talk.

b) A teacher needs to be keener and more alert with segregated classes, whether teaching boys or girls, to curb the spontaneous spirit of one and keep it going in the right direction, or to quicken and hold the naturally reserved spirit of the other.

2. Girls are more studious of books, and so have a tendency to learn by rote. Boys give keener attention in the recitation, and thus make up in a measure for their lack of preparation. Girls know far less than boys of practical affairs, and early learn to be silent when such questions are asked.

3. There is a better opportunity to develop a topic logically with a class of segregated pupils than in the mixed class, for the same reason that a teacher can teach a subject more logically in a well-graded school than in an ungraded school. We are simply carrying the grading of pupils one step farther.

I am convinced, thus far, that there is a greater gain to the boys than to the girls; but I believe in time we shall be able to do equally well for the segregated girls, if allowed to work at the problem long enough. As a rule, both men and women teachers who can hold the discipline of boys and girls would prefer to teach a boys' class. They say the recitation is more animated. Teachers of either sex prefer a mixed class to a girls' class. I believe this is partly due to the fact that our courses of study and textbooks are all prepared for boys and girls in mixed classes, and with the idea dominant throughout that men and women have identical goals and need identical training. Both of these propositions, I believe, are untrue. I believe that the goals are very different and that identical preparation is wrong; and, that, if identical goals is the true ideal, the difference in nature of the minds of boys and girls in their early teens will still demand a somewhat different treatment.

Some six weeks after the work began I asked all pupils in segre-

gated classes to write me a letter telling me how they liked segregation, and to tell me why they liked or did not like it. All boys but three said they liked it, while the girls were about equally divided. The boys expressed themselves more frankly than the girls, though their papers were not so neat, and several of them showed they were believers in some form of reformed spelling. Many of them gave as a reason for liking segregation that the teacher was more free with them and that they felt less reserved themselves. Two of the three who did not like it said with equal frankness that they could not have so much fun as they could when girls were present.

Doubtless the girls were more reserved because they felt that the principal believed in segregation and so did not like to oppose it; but their replies were decidedly lacking in frankness, whichever way they believed. Those who liked it were quite as apt to tell me a theoretical reason as those who did not like it, neither one basing it upon immediate experiences. Later on, an essay was required of each telling me in general terms who their ideal character was. All boys chose men and 43 per cent. of the girls chose men as their ideals, while 57 per cent. of the girls chose women. In mixed classes I found that a larger percentage of girls took a masculine ideal.

It may occur to some that pupils of such varied interests and attainments would best help each other. In the district school, however, where all grades from the first to the twelfth were present, the younger pupils did learn much by hearing the older recite; but the older learned little or nothing from hearing the younger recite. So in the mixed classes in the ninth grade, boys or girls become weary and lose interest while waiting for those whose attainments are far below their own to catch up. Each one learns from his superiors; but when kept back too long by inferiors, interest wanes.

In June I made a report to the board asking that the work be continued with the February class and extended to the incoming September class. The Parents' Club of the school took lively interest in the work, and, after sending a committee of ladies to visit the classes and make a report, sent a petition to the board asking that my request be granted. They commented with great enthusiasm upon the work and urged immediate action. The board, however, postponed action till midsummer. Few members were present, and when an adverse

recommendation was made, no attention was given it, and so it was adopted. When school opened in September the programme was begun with no segregated classes. The Parents' Club immediately went before the School Management Committee of the board and requested a reconsideration of the matter. After two sessions of that body, a report adverse to segregation by the majority of the committee, and a minority report favoring it, were agreed upon. At a meeting of the board on September 26 the whole matter was discussed in open meeting and decided 18 to 3 in favor of continuing and extending the experiment. The programme was accordingly recast, so that nearly all pupils in first- and mid-first-year classes are now in segregated recitations.

During the time the School Management Committee was holding the question before it, the officers of the Parents' Club of the school called a meeting of the club and spent the afternoon discussing means of bringing the matter to favorable attention. Petitions were circulated, and, when signed, sent to the School Management Committee; and, finally, a brief paper on "Limited Segregation," written for the Mothers' Congress at Springfield, was printed in a circular and sent to the parents of every first-year pupil. This was followed up by a referendum ballot asking the parents to vote "Yes" or "No" as to whether they would prefer to have their children taught in segregated or mixed classes. There were about four hundred sent out, and of the three hundred returned two hundred favored separate classes to one hundred opposed. Besides this two-to-one vote by the parents of children that had never been in segregated classes, 90 per cent. of the parents of children that were in the segregated classes last semester voted in favor of it.

How many parents have been utterly discouraged because their boys behaved so badly when compared with the girls' standard, and how many boys have become as deeply discouraged by being made to feel that they were abnormal, since they could not behave as girls do! Are we not to blame for driving our boys out of school by our failure to recognize that there should be two types?

What I would plead for, then, is a scientific study of the characteristics of boys and girls, and if it shall be found that there are the differences I have pointed out, and if thoughtful consideration of

the highest good attainable for each shall be admitted to be a complementary, rather than an identical, purpose even in education, then should we not adopt a new scheme of training, and especially should we not provide means for interesting the vast majority of our boys that now find no attraction in the present schemes of education? It is my purpose in this to assist our boys and girls in their early teens to differentiate in their characteristics, so that each shall be better prepared for the higher complementary relations of life; and after young manhood and womanhood have found themselves, let them then go in the parallel paths of mature men and women.

THE WASHINGTON DECISION ON THE HIGH-SCHOOL FRATERNITY QUESTION

The following decision by the Supreme Court of Washington upon the rights and authority of school officers with respect to membership in secret fraternities is of so great interest to school officials that we here reproduce it in full.¹ It will be noted that the School Board of Seattle did not undertake to suspend or exclude the boy in question from the regular class work of the school, and that, on the other hand, the fraternity in question seems to have been unusually unobjectionable in the respect that its meetings were held at the homes of the members. [EDITORS OF THE *School Review*.]

WAYLAND VS. BOARD OF SCHOOL DIRECTORS OF DIST. NO. I OF SEATTLE, ET AL.

(Supreme Court of Washington, August 15, 1906.)

SCHOOLS AND SCHOOL DISTRICTS—CONDUCT AND DISCIPLINE—REGULATIONS— REASONABLENESS AND VALIDITY

Ballinger's *Annotated Codes and Statutes*, Section 2334, provides that every common school shall be open to all children between the specified school ages. Section 2339 provides that all pupils shall comply with the regulations established for the government of the schools and submit to the authority of teachers, and section 2362, subdivision 5, authorizes the school directors to adopt and enforce such regulations as may be deemed essential to the well-being of the school, and subdivision 6 authorizes them to suspend or expel the pupils who refuse to obey the rules. *Held*, that the directors of a school district had authority to deny to those pupils belonging to a secret fraternity contrary to the rules of the school participation in athletic, literary, military, and similar school organizations, constituting no part of the school work, though the meetings of the fraternity were held at the homes of the members, after school hours, and with parental consent.

[ED. NOTE.—For cases in point, see Vol. XLIII, *Cent. Dig. Schools and School Districts*, §§ 341-43, 346; Vol. X, *Cent. Dig. Colleges and Universities*, § 25.]

Appeal from Superior Court, King County; A. W. Frater, Judge.

Suit by George Wayland by Russell Wayland, his guardian *ad litem*, against the board of School Directors of School District No. 1 of Seattle. From a judgment in favor of defendants, complainant appeals. Affirmed.

Perry & Hanson and C. L. Willett, for appellant. Kenneth Mackintosh and R. W. Prigmore, for respondents.

Crow, J. This action was commenced by appellant against the Board of School Directors of School District No. 1 in Seattle, King County, Wash., and other school authorities of said district, to restrain them from enforcing certain rules which deprive members of Greek-letter fraternities of the privileges of said high school, except that of attending classes. The appellant, George Wayland, a minor eighteen years of age, sues by Russell Wayland, his guardian *ad litem*, on behalf of himself and other members of the Gamma Eta Kappa Fraternity. He alleges that all members of said fraternity are of school age and entitled to all

¹ Reprinted from the *Pacific Reporter*, Vol. LXXXVI, p. 642, September, 1906.

the privileges of said high school; that they are unjustly prohibited from belonging to debating clubs, athletic teams, school bands, glee clubs, orchestras, cadet corps, and other kindred organizations of said school, and that, unless they withdraw from said fraternity, they will also be deprived of the customary honors attending graduation; that they have no privileges except that of attending classes; that said rules are in excess of lawful authority; that there is nothing objectionable in said fraternity; that its meetings are held at the homes of members, with the consent of their parents, every two weeks, from 8 to 10 o'clock, P. M., and never during school hours; that they are not under the jurisdiction of the school authorities, but are under parental control; that at said meetings improper conduct is prohibited, and that a high-class literary programme is carried out. The answer pleaded an affirmative defense, substantially alleging the facts afterward found by the trial court. From a final judgment refusing injunctive relief, this appeal has been taken.

The trial court made findings of fact, from which it appears that at the time of the commencement of this action George Wayland was a student in the Seattle High School and also a member of a certain secret Greek-letter society, known as the "Gamma Eta Kappa Fraternity;" that the membership in said fraternity and in other similar high-school secret societies was confined particularly to high-school students; that such societies were therefore usually known as high-school fraternities; that members other than such students were admitted as honorary members only; that said Gamma Eta Kappa Fraternity was first organized in Seattle during the year 1900, at which time a request was made by it for the use of the name of said Seattle High School; that before acting on said request the high-school authorities instituted a careful investigation to ascertain the probable effect of such societies on the school; that, after such investigation and after receiving reports from many prominent educators, all of whom unqualifiedly condemned the influence of said societies as highly deleterious and injurious, the school board of said Seattle district, on May 7, 1901, passed a resolution whereby said request for the use of the name of the Seattle High School in connection with said fraternity was refused, and membership of students in any secret society connected with said school forbidden; that at all times thereafter it was contrary to the rules and regulations of said high school for pupils to become members of said fraternities; that afterward said George Wayland, while a student in said school, became a member of said Gamma Eta Kappa Fraternity, as did other students; that it was also contrary to the said rules and regulations for students to become pledged to said secret societies; that said rules and regulations were from time to time modified to meet emergencies in accordance with the activities of said societies in pledging or initiating members; that on May 5, 1925, the school board, by final action, amended its former rules so as to provide that all students who were then members of any high-school secret society, or pledged to become such, who would promise that so long as they remained students of said high school they would not become members of any other such secret society or give any promise or pledge to become such, or solicit

any other student to give any promise or pledge to become a member of any high-school fraternity or secret society, and in good faith kept such promise—such students would be restored to the privileges of such school; otherwise all students who thereafter should become members of, or in any way pledge or bind themselves to join, any high-school fraternity or secret society, or should initiate or pledge any other students, or in any way encourage or foster the fraternity spirit in the high school, should be denied all the privileges of the high school except those of the classroom; that the influence of the said Gamma Eta Kappa Fraternity and similar secret societies, and the membership and pledging of students therein, permeating said school, injuriously affected the good order and discipline thereof; that in adopting the various rules and regulations aforesaid, and in denying certain privileges of said school to pupils who refused to comply therewith, the respondents at all times acted in good faith and in the exercise of an honest judgment; that such action was at all times general in its application and at no time special, malicious, or arbitrary; and that all such rules and regulations, and particularly those in force and effect at the time of the institution of this suit, were reasonable and necessary and were wholly within the powers of the respondents.

It will be observed that no attempt is being made by the respondents to deny appellant any instruction afforded by class work or by the required curriculum of the school. He is only denied certain other privileges, such as participation in athletic, literary, military, musical, or class organizations. In other words, the respondents made it optional with appellant to determine whether, against the known wishes of the school authorities, he would continue his membership in said secret society, and thereby forfeit participation in the privileges above mentioned, which were no part of the class work or curriculum, or whether, by complying with the adopted rules, he would elect to enjoy the privileges of which he is now deprived. The appellant contends that the trial court erred (1) in making certain of the above findings of fact to which he has excepted; and (2) in entering judgment dismissing his complaint. Appellant especially complains that the evidence does not sustain the finding that all active members of the Gamma Eta Kappa Fraternity were high-school students, and that any members not students were honorary members only. There may have been an instance in which an active member was not a student when initiated, but he had been a student immediately prior thereto, and there is no evidence that he did not intend to so continue. In any event, it is immaterial whether he or even other members were students. It clearly appears that the fundamental purpose was to organize with students of the Seattle High School. The evidence shows that this particular Gamma Eta Kappa Fraternity is a branch or chapter of a general organization having other chapters in various high schools throughout the country; that it is subordinate to a general or parent governing body, and that the entire organization is essentially a confederation of associations composed in the main of high-school students. We call attention to a certain periodical which, with the consent

of both appellant and respondents, was admitted in evidence, and is entitled: "*The Gamma Eta Kappa Magazine*, Quarterly Devoted to the Interest of the Gamma Eta Kappa Fraternity of the United States of America, and Published by the Grand Conclave." This magazine appears to be in the charge of one general editor located in San Francisco, assisted by chapter editors, members of twenty distinct chapters, including Rho Gamma Chapter, the one of which appellant is a member, purporting to be connected with the Seattle High School. In this magazine we find the following editorial: "In former editorials we have frequently dwelt upon our old standby of High-School Fraternities versus School Boards and Principals, but we feel compelled to again state the facts, on account of recent developments. The principal of the Seattle High School does not know what a fraternity is, or he would not attempt to enforce his proposed futile plans. It is simply a case of all educators not educated. Imagine the monarch that could prohibit a man from wearing a fraternity pin. The Sacramento Board of Education by a vote of 6 to 3 recently decided 'to forbid any member of the Sacramento High School from joining a frat society in that school.' There is no penalty affixed, and the resolution was simply adopted to quell public sentiment in order to secure a favorable vote from the people on new school bonds. In voting on this motion but one member of the board expressed the belief that the law would uphold them in attempting to crush a society in a public institution; in other words, they are educated. We hope that others will learn and save us the trouble of summoning our army of able attorneys, who are willing to defend us in the courts, and in doing so will make these uneducated beings feel their lack of knowledge with humiliation and chagrin at the expense of the poor unfortunates."

This magazine also publishes a letter from the Rho Gamma or Seattle Chapter, in which the existing differences between it and the Seattle High School authorities are discussed. This letter in part says: "And now comes the most unkindest cut of all. Beginning with the coming school year, in addition to the restrictions already imposed, all members of fraternities and sororities will be denied the right of graduation or of representing the school in any field of effort or competition. This is according to an open letter from Superintendent Cooper to Professor Twitmeyer. He calls Mr. Twitmeyer's attention to a recent ruling of the board which authorizes his action. According to the ruling, the superintendent is given authority to 'repeal all existing regulations.' This phrase may or may not be significant, for, as far as the secret societies are concerned, they will go ahead and prosper as before. There will be no difficulty in pledging and initiating new members as they may be desired, because, far from creating any dismay among the students, it has aroused a feeling of indignation and that natural antipathy to restriction which is inherent in the American youth. . . . It is barely possible that Rho Gamma Chapter will incorporate, but it is a question whether such action would help matters any or would only add fuel to the flame." Letters from the Sacramento, Cal., and Denver, Colo., chapters are also published, showing a like

spirit of insubordination against lawful school authority. We incorporate these quotations in this opinion to illustrate the seditious spirit permeating this organization, with which the school authorities were obliged to deal. Without further discussion of the evidence, we express our complete satisfaction with each and all of the findings made by the honorable trial court.

The only remaining question is whether the board of education had authority to adopt the rules complained of. Appellant insists that section 2334, Ballinger's *Annotated Codes and Statutes*, provides who shall be admitted to the public schools, and that the board of education cannot exclude any pupils so entitled to attend. No issue need be taken with this contention. The board has not excluded the appellant from the Seattle High School, neither has it threatened to expel or suspend him. He can and does attend school, and, under our construction of the rules adopted, he is at the same time permitted to continue his membership in the Gamma Eta Kappa Fraternity; although in doing so he opposes the authority of the board and thereby forfeits certain privileges which are no necessary part of the curriculum or class work from which he is not excluded. Respondents are only seeking to prevent appellant and his associates from dictating the terms on which they shall enjoy certain privileges which are merely incidental to the regular school work, and this they have authority to do. Appellant further contends that, as the fraternities meet out of school hours at the homes of members, and at no time in the school building, and as their parents consent to this action, the board is exceeding its lawful authority in entering their homes, in withdrawing from parents the control of their children, and in dictating what the children shall or shall not do out of school hours. We think this contention unreasonable. The board has not invaded the homes of any pupils, nor have they sought to interfere with parental custody and control. They have not said these fraternities shall not meet at the various homes, nor have they attempted to control students out of school hours. The evidence shows beyond a doubt that these organizations when effected foster a clannish spirit of insubordination, which results in much evil to the good order, harmony, discipline, and general welfare of the school. We can express these conditions in no better terms than by quoting from the testimony of Professor Geiger, the principal of the high school, who says: "I have found that membership in a fraternity has tended to lower the scholarship of the fraternity members, . . . the general impression that one gets in dealing with them is one of less respect and obedience to teachers. It is found that there is a tendency toward the snobbish and patronizing air, not only toward the pupils, but toward the teachers; there is a certain contempt for school authority. This is in a measure, I think, aggravated by the attitude of the parent organization, which seems to encourage members of the fraternity in this contempt for school authority, and one of the most difficult things in dealing with the situation is the fact that the members have this allegiance to a general organization or headquarters, which are often located in a distant city and which it is difficult to reach, and which exercises upon the members in the local school a very powerful influence.

. . . . In dealing with these fraternity members I have been assured more than once that they considered their obligation to their fraternity greater than that to the school." The evidence of this witness with that of the president of the school board and other school authorities overwhelmingly establishes the fact that such fraternities do have a marked influence on the school, tending to destroy good order, discipline, and scholarship. This being true, the board is authorized, and it is its duty, to take such reasonable and appropriate action by the adoption of rules as will result in preventing these influences. Such authority is granted by section 2339 and subdivisions 5 and 6 of section 2362, Ballinger's *Annotated Codes and Statutes*. It would be difficult to confer a broader discretionary power than that conferred by these sections. Manifestly it was the intention of the legislature that the management and control of school affairs should be left entirely to the discretion of the board itself, and not to the judicial determination of any court. These powers have been properly and legally conferred upon the board, and unless it arbitrarily exceeds its authority, which it has not done here, the courts cannot interfere with its action. *Kinzer vs. Directors, etc. (Iowa)*, 105 *N. W.* 686; *Board of Education vs. Booth (Ky.)*, 62 *S. W.* 872, 53 *L. R. A.* 787; *Watson vs. City of Cambridge (Mass.)*, 32 *N. E.* 864.

The appellant has cited a number of cases which in effect decide that the school board would have no authority to refuse him admission to the high school. This the board has not attempted to do; hence these citations are not in point. The only case mentioned by appellant which seems to be cognate to the questions here involved is that of *State ex rel. Stallard vs. White*, 82 *Ind.* 278, 42 *Am. Rep.* 496, in which the Supreme Court of Indiana held that the officers and trustees of Purdue University, an institution controlled and supported by the state, could not require an applicant, otherwise qualified, to sign a pledge relative to membership in Greek fraternities, as a condition precedent to his admission as a student. The university authorities had adopted a rule that no student should be permitted to join or be connected with any so-called Greek or other college secret societies; and as a condition of admission to the university, or promotion therein, should be required to give a written pledge to observe such regulation. The relator declined to sign such a pledge and was refused admission as a student for that reason only. The decision which ordered his admission was by a divided court. The majority opinion, however, is not in point as supporting appellant's contention. The appellant has not been refused admission to the high school. The school authorities have only endeavored to exercise a governmental control over him after his admission, without even attempting to suspend him. In the majority opinion in *State ex rel. Stallard vs. White*, *supra*, the court said: "The admission of students in a public educational institution is one thing, and the government and control of students after they are admitted, and have become subject to the jurisdiction of the institution, is quite another thing. . . . It is clearly within the power of the trustees, and of the faculty when acting presumably, or otherwise, in their behalf, to absolutely prohibit any connection between the Greek

fraternities and the university. The trustees have also the undoubted authority to prohibit the attendance of students upon the meetings of such Greek fraternities, or from having any other active connection with such organizations, so long as such students remain under the control of the university, whenever such attendance upon the meetings of, or other active connection with, such fraternities tends in any material degree to interfere with the proper relations of students to the university." The above language shows that the Indiana case upon which the appellant relies utterly fails to sustain any of his contentions. Our attention has not been called to any adjudicated case at all similar to this. Citation to authority, however, is unnecessary, as under our statutes the respondent school board had undoubted authority to take the action of which appellant complains, and the courts should not interfere with said board in the enforcement of the rules and regulations which it has adopted.

The judgment is affirmed.

MOUNT, Chief Justice, and FULLERTON, ROOT, and DUNBAR, Justices, concur.

THE NEW MOVEMENT AMONG PHYSICS TEACHERS

CIRCULAR IV

In accordance with the programme for the conduct of this movement, there is submitted in this circular as a basis of discussion a portion of the proposed syllabus. It was thought unnecessary to submit the entire document until it is clear that the form and arrangement is the one desired by the physics teachers.

It is important that everyone should recognize the fact that this syllabus is submitted as a basis for discussion. It has not been acted on by the commission, and it is hoped that no member of the commission will approve it unless he is sure it is an advance in the right direction. It is very desirable that there be a free and wide-spread discussion of it, and that everybody who has any suggestions to make should make them freely and without reserve. If you see any point in which this syllabus can be improved, it is your duty to inform the commission of the fact. You are also urged, if you have an entirely new plan to suggest, to send in the scheme for consideration. All such suggestions will be brought before the commission for consideration.

The purpose of the commission in this work is twofold. First, to find out just what is wanted by the teachers as a whole for the improvement of physics teaching; and second, having found this out, to attempt to secure it for them. In order to attain these objects, it is very important that everyone should express his opinion freely, and it is hoped that this will be the case. If the members of the commission will give prompt attention to this work for a short time, the commission will be able to realize its purposes quickly, and much good to the teaching of our subject will result.

The course outlined in the following syllabus is supposed to be a one-year course in the third or fourth year of the secondary school. The course should be preceded in the first or second year by a simpler and more qualitative course in general physical science. The encouragement of the establishment of such courses is one of the aims of this outline.

Attention is particularly directed to the following points of this syllabus:

1. The subject-matter of the proposed course does not differ at all from that now given in the present physics courses. Hence any of the regular texts may be used, the lessons from the text being assigned by topics.

2. This syllabus differs from those now in use in two essential points: namely, in emphasis, and in organization.

As to the first, the emphasis has been laid on energy transformations and transferences, because these are the real subject of study in physics. This emphasis also adds unity to the course by centering the discussion on one thing.

The organization of the course follows readily if we agree to emphasize the energy phenomena. The arrangement sketched below shows how much simpler the outline becomes when arranged from this point of view. The subject-matter falls naturally under a few general principles, and many of the laws of the books are seen to be either special cases, or else essential to obtaining knowledge of the energy relations under discussion. Thus the laws of the lever, the law of moments, the laws of the pulleys, etc., all fall under the general work-principle, often called the law of machines. In heat, the ideas of temperature and of heat-quantity, the laws of boiling, of saturated vapors, Boyle's law, and that of Charles are all subsidiary to finding the relations between heat and work. This organization also gives a continuity to the course and justifies the introduction of many ideas which usually are introduced without justification.

3. An organization like this enables the teacher to use the scientific method, and to develop a habit of using it among the students. For example, he starts with a problem: How much work can a heat engine do under certain conditions? In the solution of this problem, he has to proceed inductively and to establish and use most of the important principles in heat. If the students are interested in the problem there will be no trouble in retaining their interest in the steps to its solution.

4. The topics enumerated in the subheads to the general principles in the syllabus are far too numerous to be treated satisfactorily in one year. This compels the teacher to select and use only those best suited to the particular conditions under which he works. It also lays stress on the necessity of the student's comprehending and being able to use the general principles which form the chief headings. This arrangement also gives the necessary flexibility to the syllabus.

5. The historical matter is introduced in such a way as to encourage laying weight on the connections between physics and other activities. When possible, the historical matter is placed first.

6. Topics are introduced from the general experiences of the student. The attempt is made to find first a problem from his own world in which he is interested, and then to proceed in the main inductively to its solution.

DEFINITION OF THE PHYSICS UNIT

1. The one-year course in physics should occupy at least two hundred and forty periods of forty-five min. each, e. g., six periods a week for forty weeks.

2. The work shall consist of two closely related parts, class work, and laboratory work. At least one-third of the time shall be devoted to the laboratory.

3. It is very essential that at least two of the six periods a week be arranged as a double period for laboratory work.

4. The class work shall include the study of at least one standard text.

5. In the laboratory, each student should perform at least forty individual experiments, both qualitative and quantitative as the teacher may require; but twenty quantitative experiments, each of which illustrates an important principle of physics, and no two of which illustrate the same principle, must be written up in ink in the notebook. The twenty experiments so written up should be selected to illustrate the starred topics in the syllabus. (The meaning of this may not be clear. The aims are: to allow the introduction of qualitative experiments if the teacher wishes; to allow but to discourage the experiments in learning to use measuring instruments merely as such; to allow but to discourage attempts at determining numerical coefficients and constants; and to take the emphasis off the apparatus and put it on the observation of phenomena. How may these aims be attained?)

6. In the class work, the student must be drilled to an understanding of the use of the general principles which form the chief headings. He must be able to apply these principles to the solution of simple, practical, concrete problems. The teacher may omit as many of the topics in the subheads as he thinks best, provided the student is able to use the general principle intelligently, and to give reasons for his belief in the validity of the principle.

7. Examinations should be framed to test the students understanding of and ability to use these general principles as indicated in paragraph 6.

8. The teacher is not required to follow the order of topics as indicated in the syllabus unless he wishes to do so.

SYLLABUS

NOTE.—It is hoped that additions rather than reductions will be made to the following outline, especially additions of experiments for both demonstration and laboratory. If only we can make the syllabus a source of suggestion to the teacher, instead of an incubus, much good will result.

INTRODUCTION

A. Weight. Center of gravity

- a) Concept of weight illustrated by common experiences; some things heavy, others light.
- b) Measurement of weight by spring balance in gram-weight and in pound-weight.
- c) Graphical representation of weights by vectors pointing vertically downward. Scale of the plat.
- d) Weight conceived as applied at a point, center of gravity. Experiments in balancing. Conditions for balance or equilibrium, namely, that the plumb line through the center of gravity falls within the base of support. Experimental determination of center of gravity. The meter-stick experiment, etc.

B. Force. Parallelogram of forces

- a) Hang body on a string tied to a spring balance. Show that the balance reading is the same when the string hangs vertically downward and when it is passed over a pulley so that the balance is not vertical. Concept of pulls similar to weight in other directions than vertical. Graphical representation by vectors in direction of force.

- b) Two spring balances pulling against each other; readings are the same. Tension equal in both directions. Graphical representation by equal oppositely directed vectors.
- c) Two spring balances pull against one in opposite direction; sum of the two equals the one. Vectors to represent this: vector sum.
- *d) Three spring balances pulling against one another in any direction. Graphical representation by vectors. Addition of vectors to form a closed triangle. Composition of forces.
- e) Summary and statement of the parallelogram of forces.

MECHANICS

1. Forces in liquids. Pascal's law

- a) From familiar experience show that the total force on the bottom of a rectangular vessel equals the weight of the liquid.
- b) When the area of the base is constant, the total force varies with the depth. When the depth is constant, it varies with the area. Pressure defined as force per cm^2 .
- c) One c.c. of water weighs a gram.
- d) Pressure at a point the same in all directions.
- e) Pressure of a confined liquid same on every sq. cm. of the containing vessel. Hydraulic press.
- f) Summary. Pascal's law.

2. Pressure in gases. Atmospheric pressure and Boyle's law

- a) From general experiences show evidences of atmospheric pressure.
- b) Historical: Galileo, Torricelli, Pascal. Pumps: Siphon.
- c) Barometer: Uses in meteorology.
- d) Spring of air: Boyle's law.
- e) Graphical representation of $PV = \text{Const.}$

3. Equilibrated pressures in fluids. Archimedes' principle

- a) Show flotation of bodies less dense than water. Vectors representing weight of body and upward pressure of water.
- *b) Summary. Archimedes' principle.
- c) Buoyancy: Bodies denser than water in water. Balloons.
- *d) Equal volumes of different substances have different weights. Specific gravity. Vectors showing weight of the body and the upward pressure of fluid.

4. Action of weight. Falling bodies

- a) Bodies free to fall acquire velocity downward. Concept of uniform or average velocity, from running, boating, riding.
- b) Measurement of velocity. Distance measured in ft. or cm.; time in sec. Velocity measured by distance divided by time. Symbols for velocity, $\frac{\text{ft}}{\text{sec}}$ or $\frac{\text{cm}}{\text{sec}}$. Define velocity as rate of change for distance.
- c) Algebraic representation of uniform or average velocity $v = s/t$. Graphical representation on a distance-time plot.
- d) Note that in falling bodies a greater height of fall gives a greater velocity. Concept of variable velocity from cars, trains, autos starting and stopping, etc.

Concept of change in velocity in a time unit. Acceleration defined as rate of change of velocity.

- e) Algebraic representation of uniform acceleration $a = V/t$ when body starts from or ends up at rest. Graphical representation of accelerated motion on distance-time plot. Measurement of acceleration in cm. and sec². Symbol for acceleration $\frac{\text{cm}}{\text{sec}^2}$.
- f) Space passed over with uniformly accelerated motion starting from rest. $s = V^2/2t$.
- g) Numerical value of acceleration of gravity.
- h) Discussion as to whether g is the same for all bodies. Historical: Aristotle, Galileo, Newton.

5. Work done in lifting against weight. Principle of external weight (law of machines)

- a) Idea of gravity work—lifting brick, hauling water, etc. Amount of work depends on two factors—weight lifted, and distance in a vertical direction. Agree to measure work by the product of wt. \times ht. Units: ft.-lbs. or gm.-cm. Graphical representation of work on the wt.-ht. diagram.
- b) Positive and negative work. Pendulum: Work done on it (positive) equals work it can do (negative).
- c) Galileo's pendulum. Work done by pendulum not greater than work done on it. Work depends on difference of level, not on path from one level to the other. Mechanical energy may be measured by work.
- d) Historical on the use of machines in doing work in antiquity and at the present time. Simple machines.
- *e) Inclined plane. Work in lifting body up measured by weight \times vertical ht. Practically work necessary to raise the body along the plane equals force \times length. These works not equal in practice. Fl is greater than Wh . Efficiency of the plane defined as $Wh./Fl$. As friction is reduced, Fl becomes more nearly equal to Wh . In ideal case, $Fl = Wh$.
- *f) Pulleys. Smaller weight acts through a greater height. Wh not equal to wH . Efficiency. Work done by the pulleys cannot be greater than the work done on them. In the ideal case these works are equal.
- *g) Levers. Equal arm has an efficiency = 1. Principle of moments from the work principle. When the weight of the lever has to be lifted, efficiency is less than 1.
- h) Wheel and axle. Principle of moments: develop from work principle. Equilibrium when moments balance.
- i) General case of equilibrium. No translation when forces in opposite direction balance. No rotation when moments about any point balance.

6. Energy of motion. Potential energy lost equals kinetic energy gained

- a) Piledriver, falling body, bullet; pendulum. Middle of swing, $s=0$, but it has a velocity; also has its energy. Cannot measure its energy by Fs since $s=0$. Hence we must substitute for s the velocity acquired in falling a distance s . By experiment show s proportional to V^2 .
- b) Relation of s to V in falling bodies. From $a = V/t$ and $s = V^2/2t$, eliminate t and find $s = V^2/2a$. Hence $Fs = FV^2/2a$.

- *c) Note that weight is not active at the middle of swing. Yet bob of same material, but twice the size, has twice the energy. Notion of mass. How measure mass? From $F_s = FV^2/2a$; agree to measure mass by F/a . Call it m . Then $m = F/a$, or $F = ma$. In case of gravity: weight = mass $\times g$. Summary. Newton's second law.
 - d) Absolute units: of mass, gm.; of force, dyne; of work, erg.
 - *e) Weight is proportional to mass, since g is the same for all bodies. Density, as gm. per cm³.
 - f) Conceive pendulum string cut during the middle of the swing. Bob moves horizontally. How far? Notion of inertia. Energy of motion remains constant unless dissipated. Summary. Newton's first law.
 - g) Summary. General statements of the conservation of mechanical energy.
7. Power, as rate of doing work
- a) Need of knowing power. Historical rating of engines from the treadmill. Horsepower defined in foot-pounds, gm.-cm., and watts.
8. Action and reaction: momentum remains constant
- a) Common examples, as man on slippery floor, boy jumping from boat, child in swing, train and earth, etc. Force between the two the same: $F = mA = Ma$. Applied for the same time t , so that $mV = Mv$.
 - b) Impact.
9. Rotation
- a) From general experience give idea of rotary inertia, as in fly-wheel, top, etc. Manifestations of inertia in centrifugal action, as in loop-the-loop, drying machines, cream separator, etc.
 - b) Quantitative relations, $I = mv^2/r$. Rotary energy = $I\omega^2/2$.
10. Work done by fluids, measured by pressure times volume that flows
- a) Water motors, windmills, turbines, steam engines to show work done by fluids.
 - b) Measurement of work done by fluid as pressure times volume that flows developed from the expression Fs .
 - c) Summary. Necessity of flowing from higher to lower pressure. How get the water or wind or steam at higher pressure? Extension of the ideas of conservation of work. Impossibility of perpetual motion. What about heat as energy?

HEAT

II. Conversion of work into heat: Joule's equivalent

- a) Common cases of heat by friction, by compression of a gas, etc.
- b) Measurement of heat. Temperature measured by sense of touch. Touch, not sensitive. Replace by expansion. Discussion of expansion of solids and liquids. Mercury thermometer, temperature scale.
- *c) Expansion of gases, Charles' law, air thermometer, absolute scale.
- *d) Measurement of quantity of heat, gm. cal. Specific heat.
- e) Historical: Rumford, Davy, Joule, etc. and the determination of the ratio between the heat and the work units.
- f) Summary and examples showing concretely the value of the joule equivalent: e.g., compute energy wasted when taking a warm bath.

12. Conversion of heat into work. Conservation of energy

- a) General uses of heat engines: steam, gasoline, gas, etc. History of the steam engine and of its effects on civilization.
- b) Trace heat through a steam engine, showing what must be known to understand its working. Source of heat. Coal as a source of energy. Mechanical equivalent of 1 lb. of coal.
- *c) Evaporation. Heat absorbed. Water vapor in atmosphere, condensation, clouds, rain.
- *d) Saturated vapors. Pressure depends only on temperature. Definition of boiling-point. Relative humidity, dewpoint.
- e) Failure of early engines. Work of Watt. Cooling by expansion when work is done. Condensation. Cold storage, liquid air.
- *f) Freezing and melting. Heat of fusion. Special case of ice.
- g) Summary. When work is done, temperature falls. General notions of conservation of energy.

13. Transference of heat energy: flows from higher to lower temperature

- a) Common experiences of heat transfer, as hot poker, hot water and hot air heaters. Distinguish conduction and convection, and discuss them.
- b) Common experiences with radiation. Sun and earth, grate fire, etc. Concept of transfer of energy by waves, as on water, stretched rope, etc. Necessity for medium. This medium not air. Notions of ether.
- c) Radiation and absorption. Good absorbers are good radiators. All bodies are radiating heat at all temperatures. Radiation more intense at higher temperatures, and changes its nature, as heat to light at 520° C.

This portion of the syllabus is enough to make clear the proposed form and spirit. Before printing the remainder, we wish to find out whether such a syllabus meets with the approval of the physics teachers generally. In order to have as open a discussion of the matter as is possible, this suggested syllabus is now submitted, not only to the members of the commission, but also to those others who have shown interest in this matter. It has been discussed and approved by the members of the commission who are resident in Chicago, namely, by Messrs. E. E. Burns, C. H. Smith, W. E. Tower, and C. M. Turton. You are invited, whether you are a member of the commission or not, to send answers to the following questions:

1. Does the definition of the unit as given above seem to you to be what is needed? If not, please suggest changes and state your reasons for them.
2. Is the form of the syllabus, consisting of general principles to be learned for use and subheads as suggestions to the teacher, satisfactory? If not, please suggest a better form, with your reasons for the change.

3. Do you wish to have either the choice or the arrangement of the subject-matter changed? If so, please suggest changes with reasons for them. In answering this, note No. 6 in the definition of the unit.

4. Is the plan of starring topics for illustration in the laboratory more satisfactory than the old plan of a list of approved experiments?

Even if you have no changes to suggest, it is hoped that you will send answers. Though they be brief, it all helps. Answers should be sent in before December 15, so that the entire syllabus may then be completed. As before, they should be sent to C. R. Mann, University of Chicago.

STANDARD EXAMINATIONS FOR NON-COLLEGE PUPILS¹

MARY E. HASKELL

Boston, Mass.

The desire for standard examinations for girls who are not going up to college is the outcome of experience on the part of the private schools for girls in Boston. The girls who do go up for college examination have proved that there is a stimulus and an inspiration in the prospect of being examined by a body outside of their own school boards, and the girls who have not done that have in many cases expressed a desire for a definite goal and aim toward which they might work. Some of our girls have tried to achieve this goal by taking the college entrance examinations, even although they were not going to college; but to the schools that has not been satisfactory, because of the nature of the college entrance requirements. If a girl is going to college afterward, she can fill in any deficiencies that the college entrance requirements leave; but if school is to be the end of her regular mental training, we are not satisfied with the college entrance examinations. The restrictions in actual subject-matter are considerable; the restrictions in the distribution and proportion of the various subjects are more considerable, and the restrictions in method perhaps more considerable still. Methods imposed or demanded by the college requirements are frequently such as we should not choose for the benefit of our classes, and the general attitude toward a subject may be unfavorably affected by college examination requirements.

It is sometimes suggested that, for the sake of a definite goal, each school shall offer diplomas based on examinations of its own setting, which shall meet the needs of non-college girls. In the way of that, however, there are several difficulties. There is a zest and an interest in the examination and the test set by a body without our own walls, which is not felt by the girls when the examination is set by us within the walls. In the second place, no teacher wants to brand a dull, but persevering, faithful girl, on graduation day, if her steady pace has not brought her up to a creditable rank on the diploma requirements; if the examinations are set by the remoter body, the brand is not so conspicuous. In the third place, the winning of college entrance from the board, which is a national board,

¹ Read before the New England Association of Colleges and Preparatory Schools, October, 1906.

gives a stand in the face of the whole country; but the school, which can have only a local reputation, can have only a local prestige for its examination and its diploma. Those reasons withhold various schools from granting diplomas. The need for an outside examining board therefore remains.

We have felt that any board which should be really authoritative in its decisions must be connected with the leading institutions of the country. The College Entrance Examination Board is such a board, and we thought, therefore, of applying to it to set examinations which the pupils might take, and which might be the basis of diplomas given by the schools or given by the board. If the board, however, was to do this, the scope of its work would be enlarged. That would mean an addition to the very great burden which every teacher knows the college board must already carry. It would also entail expense.

It was necessary, therefore, to know whether a large body of girls and boys, but girls primarily, would want to take these examinations, before we could present such a matter to the board. We, therefore, prepared a circular letter to preparatory schools, setting forth the modifications which we desired in the college examinations. That letter was sent to about twenty-five representative schools—private schools, chiefly for girls—in the East, in each case with a personal note, the gist of which was this: "Would you like to join in such a letter, which is practically a petition addressed to the college board?" Text of the letter:

As there are always among our pupils a number of girls who wish to study for examinations, but do not wish to go to college, and as the needs of these girls cannot well be met by the college entrance examinations, it seems to us highly desirable that another set of standard examinations should be established somewhat different in scope, method, and aim from those now held. We, therefore, invite your consideration and criticism of the following suggestions:

1. The papers for these new examinations might be made out by a committee of headmasters and retired teachers from secondary schools for girls, or by the present College Entrance Examination Board.

2. The examination papers should be distributed among the schools desiring them, to be administered in their own buildings at the hours stated.

3. The aim of these examinations should be to test the training, intelligence, and general information of the candidates, and all requirements which necessitate uniformity of preparation should be ruled out. For instance:

- a) All passages for translation into English should be at sight, and there should be no translation into a foreign language except on the elementary papers; while free composition and similar tests should be given a place on the more advanced modern-language papers.

b) The examinations in English composition and in English literature should be quite distinct, no reading—except possibly one book, changed each year—being required in preparation for the former.

c) Great freedom of choice should be offered on the history, geography, and literature papers, in order to do away with any necessity for cramming.

d) Practical rather than mathematical problems should be given on the physics and astronomy papers, and qualitative work only in chemistry.

e) Above all, special sequence of subjects should be required, and no time limit should be imposed in regard to the number of years among which a candidate may divide her examinations.

4. The committee would issue two diplomas, one for work of the college preparatory grade, and one for more advanced work, to students who pass with *merit* a certain number of examinations in each grade, say in five minor and four major, and in three advanced subjects.

The replies expressed much interest in anything which should add to the interest of girls not going up for college examinations.

Inquiry was then made of members of the College Entrance Examination Board to see whether the body could consider any such proposition, as that of enlarged examinations, and we were told that the body could not add to its present duties; that it could not consider at all the granting of anything like a diploma; that they took no part in determining the results of their examinations, but simply gave the examinations and marked the papers. It seemed, therefore, that we certainly could not have a new set of papers or a diploma which should be given by the College Entrance Examination Board.

Yet the answers pointed to a very general feeling among the schools which were addressed that the college entrance requirements might be modified with benefit to the pupils; and it seemed to us, as we further considered the suggestions in our letter, that they were such as might meet with favor among many schools. We have wanted, therefore, to know whether this body would be interested in any sort of approach to the colleges for a modification of their entrance requirements, or the formation of a board which should take in hand the giving of examinations of a broader scope.

If such a board were formed, it is very hard to suppose that it would fail eventually to be merged with the College Entrance Examination Board. Why should there be two boards, when with a modification of the college entrance requirements we could get what we need for college and non-college girls alike? It would be possible, if the College Entrance Examination Board would give these modified examinations and somewhat enlarge the scope, for any school to grant a diploma on the basis of examinations set by the College Entrance Board. They would simply choose the sub-

jects which they considered of greatest disciplinary value, and subjects which they considered of greatest culture value, make their own proportion between the two, and decide what must be passed for a diploma. The diploma might be based on certain of the College Entrance Board's examinations, plus certain other examinations set by the given school. This would admit of much elasticity.

We feel so much certain hamperings in our work with the college preparatory girls that we are very desirous, for their sakes as well as for the larger body of girls who do not go to college, that a modification should be brought about in the college entrance requirements.

I am authorized to say that if this body should be interested to approach the colleges for a modification of the college requirements, the expense entailed by the large correspondence that would be needed among the schools, and the expense entailed by the College Entrance Examination Board for the initiation of work of enlarged scope, would be met, so that expense need not be considered as an obstacle.

I beg, in closing, to express our cordial sympathy with the College Entrance Examination Board in their difficult work, and our sense that in their examinations already, more than in those of the individual colleges, we feel the touch of breadth.

DISCUSSION
COLLEGE ENTRANCE REQUIREMENTS IN FRENCH
AND GERMAN¹

WILLIAM C. COLLAR
Roxbury Latin School

The New England Association of Modern Languages passed at its last session, after thorough discussion, by a vote in which there were but three dissenting, a resolution that the colleges be asked to put French and German on an equality, as regards marks and importance in the college entrance examination, with Greek and Latin. That seems at first a somewhat startling proposition. I have no hesitation in saying that personally I am strongly in favor of it, and I wish to remind you, when I say that, that I am a classical teacher, that I earn my bread by teaching Latin and Greek, and that there is no subject in the world that I love to teach so much as Greek; but we are confronted by a situation which is extremely interesting and it seems to me is going to be critical. There is no question that Greek is going out very fast in secondary schools. It is disappearing very rapidly, I have the best authority for saying, from the high schools of Massachusetts; and Massachusetts is the stronghold of the study of Greek in schools in this country. I personally believe that in two or three decades the study of Greek will be entirely eliminated from the public high schools of this and other states. It is not quite the same with regard to Latin. At first it seems to be the very opposite. There are more persons studying Latin now than ever before. The number has rapidly increased within a few years in the country generally. But I have said before, and I repeat, my own conviction is that, though Latin was never studied by so many persons as now, it was never so little studied as it is now. If Greek is likely at no distant time to be eliminated from the public high schools, if Latin is struck with dry rot, as I believe it is, and will continue to decay unless we can find some remedy for the existing condition of things, especially through a larger allotment of time for Latin, what are we going to do, Ladies and Gentle-

¹ A portion of the discussion of the motion that, "It is the sense of this meeting that the question whether greater relative weight should be given to modern foreign languages in college entrance examinations should enter into the programme of this Association (the New England Association of Colleges and Preparatory Schools) next year."

men? What is going to take the place of these traditional subjects in the training in language? It seems to me it is plain that we have got to do the best we possibly can with German and French.

It is true that Greek and Latin are to a large extent protected studies and subsidized studies. That protection and the subsidy cannot be expected very long to continue, and therefore it behooves us to consider—and consider in time, so that we shall have season for deliberation—what is best under the circumstances to do. I am not aware, Mr. President, that in any college in the land Greek or Latin is specially protected. So far as I know, and I think it must be true universally, the modern languages, French and German, and other modern languages, occupy a position of equality in colleges with Latin and Greek; but we see this astonishing anomaly that it is not so in the preparatory schools.

EDITORIAL NOTES

A conference was held at Williamstown, Mass., August 3, 1906, composed of delegates from the following associations: the Association of Colleges and Preparatory Schools of the Middle States and Maryland, represented by H. V. Ames, University of Pennsylvania; the New England Association of Colleges and Preparatory Schools, represented by W. C. Collar, Roxbury, Mass.; the College Entrance Examination Board, represented by Wilson Farrand, Newark, N. J.; the Association of Colleges and Preparatory Schools of the Southern States, represented by F. W. Moore, Vanderbilt University; the North Central Association of Colleges and Preparatory Schools, represented by George E. MacLean, University of Iowa. President George E. Fellows, University of Maine, secretary of the National Association of State Universities, was later welcomed as a member of the conference. The meeting was held pursuant to a call issued by the National Association of State Universities, November 13, 1905, inviting the above associations to appoint a joint committee "to present a plan for interrelating the work of these respective organizations in establishing, preserving, and interpreting in common terms the standards of admission to college, whatever be the method of combination of the methods of admission, in order to accommodate migrating students, and to secure just understanding and administration of standards." President George E. MacLean was elected president, and Professor Ames secretary. The following resolutions were adopted:

1. That this conference recommend to the various Associations of Colleges and Preparatory Schools that the colleges which accept certificates recognize the validity of the certificates from all schools accredited by the New England College Entrance Certificate Board, and schools accredited by the North Central Association of Colleges and Secondary Schools.
2. That this conference commends in general the definitions and standards established by the College Entrance Examination Board, and recommends that the various Associations of Colleges and Preparatory Schools co-operate with the board in formulating and revising, when desirable, these definitions.
3. That this conference recommends that a permanent commission be established for the purpose of considering, from time to time, entrance requirements and matters of mutual interest to colleges and preparatory schools; that the commission be composed of delegates from the following organizations:

The New England Association of Colleges and Preparatory Schools.

The New England College Entrance and Certificate Board.

The Association of Colleges and Preparatory Schools of the Middle States and Maryland.

The College Entrance Examination Board.

The North Central Association of Colleges and Secondary Schools.

The Association of Colleges and Preparatory Schools of the Southern States.

The National Association of State Universities, and such other organizations of colleges and secondary schools as may join.

4. That this conference recommends to the Association of Colleges and Preparatory Schools of the Middle States and Maryland and to the Association of Colleges and Preparatory Schools of the Southern States that each consider the desirability of organizing a college entrance certificate board or a commission for accrediting schools.

5. That, in the judgment of the conference, it is extremely important that all examinations for admission to college, whether set by a board or by a college, should be either prepared or reviewed by persons who have had experience as teachers in secondary schools.

The board also discussed, without action, a resolution that greater relative weight should be given to modern foreign languages in entrance examinations, and also the question of the importance of uniformity in granting advanced standing to students migrating from one college to another.

In reply to a request from the editors of the *Review*, President MacLean has very courteously furnished the copy of the minutes quoted above, and the following statement as to the history of the movement:

A national movement of great significance to higher and secondary education is emerging, as the following minutes of the call and conference will show. The movement is an outgrowth of the work of the North Central Association of Colleges and Secondary Schools, fostered by the National Association of State Universities. The College Entrance Examination Board of the Middle States and Maryland, and, last of all, the New England College Entrance Certificate Board, had prepared the way, and discussions in the National Educational Association have also contributed. The following articles indicate sources through which the movement can be traced: The President's Address, by Principal Frederick L. Bliss, in the *Proceedings* of the Tenth Annual Meeting of the North Central Association; "Plans of Admitting Students to Colleges and Universities," by President George E. MacLean, in the *Proceedings* of the National Educational Association, 1905; "Co-ordination of Systems for Admission to College," by the same author; and the resolution of the National Association of State Universities of the United States, in their *Transactions and Proceedings* for 1905. The matter was followed further in an address, "The American Federation of Learning," by President MacLean as president of the North Central Association, at the eleventh annual meeting.

The germ of the movement can readily be traced back to 1893. In that year, at the Williams College Centennial, filled with the spirit which later organized the North Central Association, a prophet honored by President Harper as by all of us, Acting President Judson, then Dean Judson, looked forward to the forming of what he called the "American Federation of Colleges and Secondary Schools."

In the intervening years the crystallization of the associations of colleges and secondary schools in the great sections of the country, and particularly the deeds of the Commission on Accredited Schools of the North Central Association and of the College Entrance Examination Board, indicate that the time is ripe for the fruition of the hopes of many American educators.

THE HIGH-SCHOOL
LIBRARY PROBLEM

There is no problem relating to the equipment of the high school which is more pressing than that of the library. School authorities have agitated the question of better buildings, better heating, and ventilation until conditions in larger communities are generally very good. To those of us who went to school in the old barracks the modern structures seem almost palatial. Laboratories for physics, chemistry, botany, and zoölogy are being rapidly supplied. In many schools in the cities they are far better than those in the colleges of a score of years ago, or even better than those in all but a few select colleges now.

But the library problem has scarcely been touched. Few books, few current periodicals, absolutely no bound files of the periodicals, and few of the accessories of a good library, is the library story in practically all schools in small towns and in most larger ones. I have visited a great many schools in various states, and the superintendents in piloting me about usually take me to the laboratories, the cabinets of fossils, the pickled frogs, the manual-training, and the writing and drawing exhibits. I am glad to see them and have examined some splendid equipment and results of work. But seldom am I taken to a real library. Often when I inquire I am conducted to a close, stuffy room, almost windowless, the books piled in confusion, at which I am not surprised, for frequently most of them are musty, abandoned, dog-eared, out-of-date textbooks. Intentionally planned and adequately equipped rooms are as scarce as suitable laboratories were a quarter of a century ago.

Why should our schools not take some hints from the splendid examples of public libraries which have become so common everywhere? Boys and girls frequent the public libraries in all our cities and learn to use them intelligently, though not always wisely. In many cities the boys and girls are taught to use the card catalogues, hunt references, and cross-references, and often ferret out interesting material in an exhaustive manner. Even children's rooms are arranged and special times are set apart for telling stories, reading selections from choice books, exhibiting pictures, and teaching library etiquette.

But the schools have not glimpsed the possibilities or the necessities of the situation. In every city school building there should be set apart as a library for the high-school grades and the grammar grades one large room, hygienically lighted, heated, and ventilated, arranged with comfortable chairs, even a few rockers. There should be daily papers, suitable magazines, art portfolios, a liberal supply of the best fiction, travel, adventure, and popular science, to say nothing of an abundant supply of real, live, unabridged historical narration, biography, essays, and compendiums of the various subjects pursued. Of course, the dictionaries should be there, and the gazetteers and cyclopaedias, but let these be courts of last resort. A boy or a girl has little use for a cyclopaedia or dictionary until he has found some live specimens which he would find delight in identifying by the books of fossils. If we could first excite a white heat of interest in some live subject, either as discovered through exploration afield, in the laboratory, or through contact with readable treatment in books or magazines, we should not be obliged so often to listen to dry, rattling compositions, exhumed from the cyclopaedias.

All the pupils should be taught the use of the modern card catalogue, which should be provided, and should make collections of references of their own. The library should be the center of activity of the entire work of the school. To be sure, contact with real things in field, wood, and quarry, and opportunities for making, molding, and constructing, should be fundamental in all real education. The library should not lessen the interest in or necessity for concrete and objective experiences, but it should be the place where new meaning, new interpretations, are given to all that is gathered objectively.

With ample reading room, properly supplied, and rationally supervised, we could very radically modify the present assembly-room hours. Nearly all the difficulties of discipline arise in the assembly room. The arrangement of the room with long rows of desks, the unnatural silence, the strained repression, and the means of enforcing this military attitude all act as suggestive factors in producing infractions of discipline. We must not forget the power of suggestion—and contrary suggestion as well as positive. The ordinary assembly-room arrangement and régime are not calculated to develop positive virtues, but, on the contrary, all is negative. It always strikes me as pathetic to see some teacher whose sole business during the so-called study period is to enforce repressive measures, act the martinet, and be on the watch for wrong-doing. Not as a helper, a leader, but as a policeman.

Would not a properly equipped and utilized library lessen most of these evils? Order would be no more difficult than in a public library or a college library. Assistants should be there to help in every way possible. The purpose should be to extend a helping hand, to encourage, and not solely to spy out misdemeanors.

Is it not inconsistent to say that our schools are to put the child in touch with his environment and to help him to interpret it, and at the same time never provide daily papers, magazines, and books of current interest? Many of the pupils have absolutely no opportunity to see papers and magazines at home, and the school should provide them. If we are to lead the child to discriminate between literature that is worth while and that which is vicious, we certainly ought to give due attention to newspapers and magazines, for they make up the bulk of most people's reading. It is very refreshing to find schools which arrange their work in English so as to utilize the magazines and daily papers, but such schools are not numerous. The most effective work I have seen in this line was in Principal Reuben Post Halleck's school in Louisville, Ky. Undoubtedly there are many other schools where similar features could be observed. Constant use is made of current events in the English classes. The vigorous oral reports, couched in choice English, which I heard there were decidedly interesting. They were good examples of one type of results which I should expect to accompany the development of adequate library facilities. Who will give us an account of the actual workings of a model school library? Even though the library room is impossible under the existing conditions in many places, could not the reading material be provided, and opportunities and encouragement given for their wise use?

BOOK REVIEWS

Citizenship and the Schools. By JEREMIAH W. JENKS. New York: Henry Holt & Co., 1906. \$1.25.

From those who are at all acquainted with Professor Jenks's work as an economist and educator this collection of addresses and essays will receive an appreciative welcome. Although nearly all of these papers were prepared, primarily, for special occasions, they lose little of their interest and contain much that is of permanent value, presenting the writer's views of the relation of the school to citizenship as looked at from different standpoints, with very little repetition of ideas.

He assumes as axiomatic that it is the function of the school to prepare its students for citizenship. His second proposition seems to be that the expressions "good citizen" and "useful citizen" are about synonymous. "Our problem as educators," he says, "is to fit our pupils so that each one will, on the whole and in the long run, in his own place in society and in his own way, by and through this self-development, render to his fellow-men the best service of which he is capable." This usefulness should find its expression in three fields: in the social life generally, in the industrial life, and in politics. The influence of society upon the individual, and the reaction of the individual upon society in its various phases, is discussed in the address on "The Social Basis of Education." Preparation for service in the industrial field receives special treatment in two papers: "The Relation of the Schools to Business" and "Education for Commerce." In this connection the author remarks that "the problems for the school to solve seem to be these: First, how can our schools be made more attractive to pupils so that they will be willing to submit themselves longer to their good influences, and how can they be made to appear to the parents to be more useful so that they will compel their children to remain some years longer? Second, how can the work be so changed as to give (a) greater skill to our workmen, and more knowledge that will be useful in business life; (b) greater adaptability to changing circumstances; (c) faithfulness to duty with the power of spontaneous self-direction which will make them both faithful to tasks that are put upon them and ready to rely more upon themselves in meeting the problems of life which are given them to solve; (d) the realization of social responsibility?"

The papers "Training for Citizenship" and "The Making of Citizens" deal directly with the question: "How can the school better fit the pupil to take his place and perform his duties properly as a member of the state, of society organized for the purpose of government?" This cannot be done by simply imparting a knowledge of the machinery of government: the names of the various officials, their functions, terms of office, salaries, etc. It must be accomplished by kindling in the soul the right spirit, and awakening within the mind a deep and abiding interest in the social, economic, and political problems that are pressing for solution. The remaining papers—"Free Speech in American Universities," "Critique of Educational Values," "Policy of the State toward Education," and "Schoolbook Legislation"—do not touch so directly the subject of citizenship, but are able discussions of subjects in which everyone connected in any way with educational work is deeply interested.

It would be impossible within the limits of this review even to outline the valuable suggestions which the book contains for making the school a more efficient factor in preparing young people for citizenship. The reader may not agree with all of Professor Jenks's conclusions, but he cannot fail to be inspired by the spirit of these addresses and essays.

EDWARD E. HILL

HYDE PARK HIGH SCHOOL
Chicago

The Principles of Teaching, Based on Psychology. By EDWARD L. THORNDIKE. Pp. 293+xii. New York: A. G. Seiler. \$1.25.

That "teachers are born not made" contains so much truth that a great many men are skeptical as to the feasibility of really "making" teachers. Such men claim that normal schools, departments of education, and teachers' colleges serve mainly as a selective agency, discovering who are the "born teachers." This same class of men do admit, however, that some courses offered by these schools for teachers do contribute in a general way to the equipment for teaching: the history of education gives one a good orientation in school work; the principles of education furnish ideals; educational psychology may bring one into sympathy with the child in his development. This skepticism toward a science of teaching may account for our having only two first-class books (aside from the one under discussion) the central aim of which is to formulate some principles of teaching. The fact that little scientific study has been given this topic is a second reason for the scarcity of really valuable books on this subject.

Professor Edward L. Thorndike has given to the educational world a work on *The Principles of Teaching, Based on Psychology*. The author clearly shows himself in sympathy with a science of teaching. He believes that *facts* concerning physical activity, mental life, and human conduct may be so studied as to contribute principles of practical service in teaching. This scientific study he has made in both experimental psychology and actual school work. Throughout the book verifiable facts are dealt with rather than attractive opinions: these facts are practical in that they refer to the actual work of teaching.

Dr. Thorndike opens his study with this problem: "The need of education arises from the fact that *what is* is not what *ought to be*." To effect this change is the work of teaching; *how* to make the changes (determined by other studies) is the real issue. The answer to this question is sought in a consideration of the following topics: physical education, instincts, and capacities, apperception, interests, individual differences, attention, association, analysis, reasoning, responses of conduct, responses of feeling, motor expression, motor education, formal discipline. The principle running throughout the study is the psychological one: responses of intellect, feeling, or conduct depend upon the stimuli applied. The changes sought must, therefore, be secured by varying, under control, the stimuli occasioning the responses. In securing and directing attention, the common battle is between the stimulus the teacher gives and some competitor; the teacher's task is to outbid some rival.

Three characteristics of the work are prominent:

1. *Clearness.*—In his preface the author says: "The book demands of students knowledge of the elements of psychology;" and at the opening of most of the chap-

ters a "Preparatory" reference to the author's *Elements of Psychology* is given, expecting the student to first familiarize himself with the kindred topic in the *Elements of Psychology*. This would doubtless be helpful, but it is not at all necessary since the text is so simple and clear. The first paragraph on interests is typical: "When any situation arouses attention, that is, leads the mind to busy itself with the thing or idea or feeling, it is called interesting. The tendency to devote one's thought and action to a fact is called interest in it. The feeling of arousal, of mental zest, of being drawn to the fact, is called the feeling of interest."

2. *Directness*.—The work is not cumbered with repetitions and redundant phraseology. The topics are discussed briefly and pointedly. The opening of the second paragraph on interests is typical: "With the fact and feeling of interest education is concerned in two ways: First, it must be the aim of education to encourage and create desirable and to discourage and destroy undesirable interests. . . . Second, we depend upon interests to furnish the motives for the acquisition of knowledge and for the formation of right habits of thought and action."

3. *Concreteness*.—The author insists that neither he nor his readers be led away into abstract theories. To this end over one-third of the book is devoted to *exercises*, distributed at the close of each chapter. These are strictly concrete and practical, found in every schoolroom; e. g., "Name three interests which contribute to make pupils eager to know their marks. Which of these are desirable, and which are undesirable, interests?"

Two questions of adverse criticism must be raised: (1) Does not the work lack unity in the development of a central theme? The chapters are arranged very much as similar chapters in any work on general psychology. Thus each chapter seems a topic by itself, and thus fails to show the relation between interest and association, for example, in any one lesson with a class. The large number of exercises at the close of each chapter are given at random, rather than grouped for the purpose of bringing out more clearly leading thoughts. This lack of arrangement leads to answers on the basis of mere common-sense rather than scientific knowledge. (2) Does not the work answer much more the *what* than the *how*? In a closing chapter the author says: "The problem has been always, 'What must be done to get this or that particular response?'" It is insisted that good teaching derives interest in school work from the common instinctive interests in play, action, etc. But the method of doing this in the period of class work is not suggested.

In spite of these possible weaknesses, this book must be regarded as one of the very best of its kind. It is brimful of most valuable suggestions. The theoretical man is made more practical; the practical teacher is led to think more scientifically. Teachers may be very grateful to Professor Thorndike for this helpful work.

J. L. MERIAM

TEACHEPS COLLEGE
University of Missouri

Exposition in Class-Room Practice. By THEODORE C. MITCHILL and GEORGE R. CARPENTER. New York: The Macmillan Co., 1906. Pp. viii + 373.

Many recent textbooks on English composition purporting to solve the much-advertised difficulties are merely freakish ideas put forth in an attractive form. Sometimes we admire the author for his ingenuity, occasionally we praise him for his industry,

and invariably we continue our search for a tangible and practical textbook. Such a book, one that has no visionary peculiarities, is *Exposition in Class-Room Practice*, by Mr. Mitchell, of Boys' High School, Brooklyn, and Professor Carpenter, of Columbia University. Every feature of this textbook gives evidence that the authors have faced their problem with a clearness of vision and a real knowledge of the needs of pupils in the classroom.

The distinctive feature of the volume is revealed in the title. Treating only of exposition *in detail*, the authors aim to "develop a thorough understanding of the phases of explanation, by means of an abundance of illustrative material and copious exercises—all the outgrowth of extended trials in the classroom." This illustrative material is not of the usual cut-and-dried literary material so often found in books on English composition; it is drawn, in a large measure, from present-day newspapers and magazines.

Another departure from the common run of similar textbooks is noted in the extended space given both to *outlines* and to outline exercises. This feature strikes at the heart of the whole matter. However mechanical an outline may be, and however much it may tend to destroy enthusiasm and spontaneity in composition, it is, nevertheless, the very basis for all composition work in exposition—in fact, for all kinds of composition. Every experienced teacher in English composition knows that all work in his subject, both analytical and synthetical, eventually reduces itself to an outline. Such work may, indeed it often does, become the end of the teacher rather than a means for the pupils. To avoid this grave error should be the main concern for both author and teacher. The authors of the textbooks under consideration have not erred in this respect. Emphasis is given more to the completed structure than to the plan.

At equal length, and with equal care and foresight, the authors have treated the *summary*. In no other textbooks for schools is the subject of summaries so adequately discussed. The habit of making good outlines and careful summaries will bear fruit in every recitation, not only in the English classroom, but in physics, chemistry, history—wherever the pupil is called upon to express himself. A sure grasp of these essentials will enable the pupil to impart his ideas, and to receive new ideas, with a clarity and comprehensive reach of thought unknown before. Could we obtain these results generally, our colleagues would call us blessed. A further step in the right direction is made by the authors in devising a well-ordered scheme of systematic and searching questions as guides for criticism. Here, as elsewhere in the book, the scheme may appear too mechanical. Yet, we believe the authors recognize that the pupils are human, and that pupils respond most readily to sympathetic treatment in theme criticism. But they also recognize that English composition is a plain, matter-of-fact proposition demanding rigid and determined means for self-criticism, and it is here that all their schemes are to be commended.

Only one restriction can be placed on this textbook. The going into extensive detail has so lengthened the book that few schools will be able to use the whole of it. Nevertheless, it will be a most acceptable reference book. To the teacher it is indispensable.

H. E. COBLENTZ

SOUTH DIVISION HIGH SCHOOL
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Forty Lessons in Physics. By LYNN B. McMULLEN. New York: Henry Holt & Co., 1906. Pp. xviii + 752.

McMullen's *Forty Lessons in Physics* is a neat-appearing book, which breaks away from the stereotype form so common of late years. It has an individuality which is pleasing, even though it may not be considered serviceable. It follows consistently certain lines of presentation throughout, and attempts but one thing: a concise statement of the essentials by means of definitions, synopses, diagrams, formulas, and problems, without experiments, pictures, illustrative discussions, or an appendix. And it is also remarkably free from the errors and ambiguities which ordinarily attend a first edition.

This brief review will disclose to most teachers of physics either strength or weakness, depending largely upon their own views of what is desirable. What one considers strength another will consider weakness, as there is a wide difference of opinion as to what is desirable in a textbook. And also, strange as it may seem, what many consider weakness theoretically they will accept as strength when it comes to practical applications; as many teachers utterly fail to practice in their teaching what they preach at teachers' meetings.

The book is pedagogically strong, in so far as it approaches gradually some of the more difficult subjects. As the human race requires generations, and the infant requires years, to assimilate new ideas, so the high-school pupil requires weeks, and sometimes months, to understand the more difficult subjects of physics. No matter how well grounded the average pupil may be, no matter how diligently he may study, the difficult subjects cannot be grasped at once. Time is as essential an element as knowledge and diligence. The book presents such subjects as force and energy first qualitatively and then later quantitatively. This is as it should be with all difficult subjects; and it is frequently well to make both the qualitative and the quantitative presentations in widely separated steps. But in the *Forty Lessons* this method seems to be accidental rather than intentional; and the principle is woefully violated in many cases.

The pedagogical weakness of the book is indicated by the word "definitions" above. The text seems to be little else than a series of dependable definitions. This word may be an unkind exaggeration; but in my opinion the meaning which the book seeks to convey is couched in such concise terms as to be unintelligible to the average high-school pupil. Unfortunately this is true of many of our physics textbooks; and in discussing the matter I do not by any means criticize this book alone. I think to the average teacher of physics this text is sufficiently clear—clearer than many others. But we should bear in mind that the teacher in physics has a basis for comprehending away beyond the average pupil, not only in his knowledge of the subject itself, and in his ability to infer all that the words and phrases imply, but also in his far wider life-experiences. If it were Latin or even mathematics, the life-experiences would count for little; but not so with physics. If the book is desired merely as a concise summation of what has been elaborated in the laboratory and the classroom, it would well answer the purpose. But to me a textbook is of value only in so far as it conveys meaning to the average pupil after a consideration of such preliminary experiments as the subject may allow. If the teacher is obliged to illustrate and explain by mere words, the textbook is superfluous; reference books in the library will suffice. And verbal explanations are undesirable because they consume valuable time and add

to the mental exhaustion of the pupils due to constant "teachers' talks." It also develops the shiftless ear-habit which is so common. Most men and women will ride several miles, and spend an hour or so in a poorly ventilated and crowded room listening to a lecture, rather than to read quietly at home articles on the same subject written by better authorities, in more careful language; and this although the lecture must be gulped down whole as it comes, while at home one may select or reject, read or meditate, at pleasure. This is because most persons have acquired the ear-habit which teachers force upon pupils by their constant talks. If authors and publishers want books appreciated, they will do well to present to pupils those which are intelligible to them as well as to the teachers.

In the *Forty Lessons* almost the first reference to the dyne is the statement that it is "that force which, acting against the inertia of a one-gram mass for one second, produces a change in velocity of one centimeter per second." No explanation whatever follows, and nothing more intelligible precedes. I have not taught the dyne for years because the majority of my pupils cannot understand it, and the time is better spent otherwise; so that I would eliminate it altogether from the textbook. But if it enters let it come clothed in language that is intelligible to at least the inexperienced teacher. As the conditions referred to cannot be produced and have never existed, how is the helpless pupil to know all of the implications which are expected to arise out of that which is not stated? This and similar definitions are followed by a set of problems which are never worked intelligently by the average pupil, but are solved mechanically by means of formulas. Their nature is indicated by the phrase "acceleration per second per second" which is used occasionally; a phrase which is hardly understood by the average teacher.

Later the book states: "The specific heat of any substance is the ratio of the amount of heat required to raise unit mass of that substance one degree to the amount required to raise unit mass of water one degree." This is neither preceded nor followed by explanations. How eagerly many pupils seek for some crumb of meaning when confronted by such definitions! What teacher cannot call up the weary, earnest face of some pupil as she relates how she struggled trying to understand similar statements or the problems based upon them; and how appreciative she became when a few well-put phrases made the meaning clear. Why not say: "The specific heat of iron is the number of calories required to raise the temperature of one gram of the iron one degree," or something similar, and then follow it up with some broadening explanation? The word "ratio" has little meaning to those not raised on ratios; the phrase "amount of heat" is first mentioned eight lines above the definition; "mass" is understood only by Karl Pearson; and the introduction of water doubles the confusion. The first problem based on this definition is the following: "How much tin at 90°C . must be placed in 100 g. of mercury at 10°C . contained in a glass vessel whose mass is 50 g. so that the resulting temperature may be 20° ?" The problem is ambiguous even to the calorimetry expert; and certainly should not be thrust upon the pupil without breaking the way by something more simple and practical.

Throughout the book appears this same scientific preciseness which excludes clearness. And this is aggravated by attempting to convey conceptions of unfamiliar objects with line diagrams.

I believe that there is nothing so destructive to high-school physics as these unintelligible presentations; and I base my opinion upon investigations along this line covering many years and thousands of pupils. It cannot be said that the teacher

should make up the deficiencies. No teacher should be obliged to use the class time for this purpose; and most teachers, though they may be forced to explain finally, will assign from the book first, thus rapidly destroying the enthusiasm of the weaker pupils. And, above all, the pupil who is forced to purchase a textbook has a right to receive that which is of value, and not that which merely deadens his interest and stultifies his intellect.

ERNEST J. ANDREWS

ROBERT A. WALLER HIGH SCHOOL
Chicago

Elements of Political Science. By STEPHEN LEACOCK. Boston: Houghton, Mifflin & Co., 1906. Pp. ix+417. \$1.75.

It is not the aim of this book to throw new light upon the solution of political problems. It will be welcomed, however, by students and teachers of political science because it furnishes a careful analysis of the material already on hand, and a brief, but clear and comprehensive, statement of the most important conclusions reached by investigators in this field.

In defining its scope the writer says: "Political science deals with government. . . . Its field lies in the examination and analysis of the varying forms of human organization in which the element of social control is embodied." But "the organized aspect of the community, the state, must be treated not only as an actuality, but also as a product of the past, and as the basis of the life of the future." Having thus defined its scope, he proceeds to trace its relations to the other sciences. Its conclusions, of course, are based upon the facts of history. "There is, indeed, a natural tendency on the part of the political scientist to view history somewhat in the light of mere raw material." Its principles are also closely interwoven with the principles of political economy; while it embraces completely the fields covered by international and constitutional law.

The whole field of political science is divided into three parts. Part I deals with the nature of the state. Here are considered the various theories regarding the origin of the state, the question of sovereignty, the subject of rights, the relation of states to one another, and the classification of states based on their forms of government. In Part II the structure of government is examined. To the usual discussion of the separation of powers and commentaries on the legislative, executive, and judicial departments of government are added very interesting chapters on federal government, colonial government, local government, and party government. Under the general head of "The Province of Government," in Part III, the author criticizes briefly the theories of individualism and socialism, and shows in conclusion that the modern state has tendencies toward the latter. He points to modern protective tariffs; to attempts on the part of the state to regulate prices and control corporations; to governmental interference in behalf of the working-class in the way of factory laws, state insurance, and pension laws; and to a constantly increasing municipal control of public utilities as evidence of how far society has departed from the individualistic *laissez-faire* doctrine that held sway about a century ago.

Some will be inclined to differ with the writer's view as to the vesting of sovereignty, and the followers of Hamilton will hardly agree that the doctrine of implied powers necessarily means a stretching of our constitution. The paragraphs on the control of railroads by government will seem to many to give undue prominence to the argu-

ments of railroad corporations against uniform rates, while leaving in the background the evils that have grown up out of unrestricted discrimination. But on the whole a fair and impartial spirit pervades the book. Where the author has entered upon the discussion of a disputed point he has clearly endeavored, so far as space would permit, to give all sides a fair chance, and in stating his own opinions he always does so with a modest consideration for the opinions of others.

The most serious defect of the book is due, not to the author, but to the nature of the subject. The task of condensing into a single small book an amount of material that would make several quarto volumes look respectably corpulent is not an easy one. The result, of necessity, is of the condensed-food variety. It is almost too strong to be taken clear by the young student of political science, but will make an excellent diet when properly diluted with class-room discussion.

HYDE PARK HIGH SCHOOL
Chicago

EDWARD E. HILL

Beginning Latin. By JOHN EDMUND BARSS. New York: University Publishing Co., 1906. Pp. x+321. \$1.

The tendency of recent first-year Latin books has been toward a more adequate preparation for Caesar. The value of a new book must be gauged by its ability so to prepare a pupil. Even a casual glance at Barss's *Beginning Latin* shows the large amount of grammar it includes. If a pupil can absorb this, he should be quite ready for Caesar.

Notable features are the unusual amount of English into Latin, and the placing of the grammatical portions first, reserving the bulk of the exercises for the latter part of the book. These are followed by form paradigms. The special vocabularies for each lesson do not come until near the end. The position of the exercises has the advantage that, while they are expected to be used in connection with each lesson, alone they form a complete review when the grammar has been covered. The special vocabularies are well placed as the learner must know them, for he cannot depend upon finding the words of his exercise at the top of the same page. The gradation of the exercises is easy, and the including of passages from Caesar in the general lessons accustoms the pupil to idioms which he will meet with later.

Special topics receiving very excellent discussion are: explanations of *nonne*; of the position of adjectives; of the expletive *there*; third-declension stems; ablatives of agent and means; the principal parts of verbs; the termination of adjectives; the use of *summus*, *infimus*, *medius*, *extremus*, *reliquus*, *hic*, *ille* and *is*, *alius*, *aliud*; and the classification of third-declension nouns according to gender. The subjunctive mode is well introduced, and the tenses of the subjunctive in purpose and result clauses, as well as *num*, indirect discourse, participles, the ablative absolute, the first and second periphrastics, and the dative of agent, are well treated. The reasons for the dative with *credo*, *pareo*, *persuadeo*, etc., as well as for the ablative with the deponents *utor*, etc., are given in detail. Genuine originality is shown in the diagrams on pp. 45 and 49 illustrating shades of meaning in the prepositions *ab*, *de*, *ex*, *ad*, *in*, and *sub*, as well as that for the sequence of tenses on p. 171. These diagrams, the treatment of numerals, of indirect questions, and of the various classes of participles, with a final discussion on translation, are the book's strongest claims for public favor.

Serious difficulties are the amount of grammar, however good, and the compelling of pupils to work out their own paradigms—a loss of effort in work so purely memoriter as first-year Latin. In detail, fault might be found with the absence of paradigms for adjectives in Lesson III, the formation of the comparative, the treatment of the superlative, the short list of irregular adjectives, the rule for degree of difference and the informality of the ablative of specification (a footnote). *Mille*, which can be either noun or adjective in the singular, is classed as adjective only. The rule for declension of the hundreds, and for formation of comparatives of adverbs, are needlessly complex. Too few adverbs are compared. The subjunctive and infinitive are without complete paradigms, except those of endings in "Forms" near the back of the book. Unnecessary detail is given to the uses of *cum*.

For a new book, the number of errors is remarkably small: p. 56, *Rōmānī . . . Rōmānōs superābant*; p. 64, *pācem diutūrnū . . . nōn tolerābat*; p. 107, *saepe* instead of *saepe*.

The paper, printing, and binding are good, and there are illustrations of merit showing Gallic as well as Roman scenes. The volume, one of the Gildersleeve-Lodge Latin Series, is attractive and deserves the attention of teachers, if not at once to place in the hands of classes, at least as an excellent volume of information to supplement the text in use.

A Help for Latin Students. By E. G. HILL. Seattle: C. W. Lee, 1905.

I heartily recommend this little handbook for Latin students. The idea of putting case endings of nouns and adjectives, and mode and tense endings of verbs, in red ink is excellent. Under the topic "Common Noun and Verb Constructions" are references to the Harkness, Bennett, and to both editions of the Allen and Greenough *Latin Grammars*. A vocabulary shows the relation and meaning of words from roots used by Caesar ten times. The important points of grammar are shown in a way likely to interest the student more strongly than an ordinary grammar can do. Its field is that of a grammar for elementary students, not that of a textbook.

LOUIS M. SEARS

JOLIET TOWNSHIP HIGH SCHOOL
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English Grammar for Beginners. By JAMES P. KINARD. New York: The Macmillan Co., 1906. Pp. x+256. \$0.50.

The Elements of English Grammar. By ALBERT LE ROY BARTLETT and HOWARD LEE MCBAIN. New York: Silver, Burdett & Co., 1906. Pp. viii+345. \$0.60.

The revival of interest in the teaching of English grammar in the seventh and eighth grades is still productive of new texts. There is so little that is new or that marks an advance over other books that there seems to be no excuse for the appearance of the latest comers, except the need of the publishers to have a complete list.

Mr. Kinard's *Grammar for Beginners* omits all but the most obvious facts of the subject. So far has the attempt to simplify been carried that the pupil is in danger of getting half-knowledge which his high-school teacher must cause him painfully to unlearn. Although much is made of the inductive mode of treatment, the old-fashioned order is followed and the study of the sentence placed after the parts

of speech. The index is incomplete; the word "clause," for example, does not appear in it.

The Elements of English Grammar, by Bartlett and McBain, completes the series of the Silver Language Series by these authors. The preface claims nothing new for the book except its pedagogy. While not new, the pedagogy is sound enough and in harmony with the practice of many grammar-grade teachers. Part I treats "The Sentence and Its Structure;" Part II, "The Parts of Speech;" Part III, "Composition." Oddly enough, the natural order of topics is reversed in the lessons on composition, "Choice of Words" being placed first and "The Whole Composition," with "Letter Writing," last.

The book, as a whole, is sufficiently exhaustive for the strongest grammar schools and might well be used in the high school. The authors have wisely refrained from inventing new and fantastic terminology, and hence no impediments have been placed in the way of the pupil who will later study Latin or German. The matter for illustration has been well chosen, and the emphasis upon constructive work is properly placed.

Typographically the book is excellent. Logical subordination of subordinate topics has been carefully indicated, and there is none of that bewildering multiplicity of chapter headings which too often appears in textbooks for the lower schools.

JAMES F. HOSIC

CHICAGO NORMAL SCHOOL

Atlas of Physiology and Anatomy of the Human Body. A series of colored plates with parts overlaid to show dissections. By ALFRED MASON AMADON. Boston: Little Brown & Co. Pp. 50. \$3.50.

This atlas of the human body contains one sixteen-inch plate with parts overlaid to show (1) the viscera, respiratory, and urinary organs; (2) the muscles; (3) skeleton, front and back; (4) blood-vessels and nerves; with seven separate, additional plates of (1) the head and neck, showing (a) the skeleton of the face, (b) muscles, vessels, and nerves, (c) longitudinal section through the head, (d) the skull, (e) the parts of the brain; (2) the upper respiratory organs; (3) the tooth; (4) the organs of digestion; (5) the ear; (6) the eye; (7) the nose. The structural parts are well executed, with their marginal limits plainly marked. The plates are accompanied by explanatory text, with pages arranged in double column. The first column gives the name and location of organs and their structures, and the second column describes their nature and function. The whole is clear and concise, and should render distinct service in assisting students to gain clear ideas as to the organs and structures of the human body—their location, character, and functions.

I. B. MEYERS

UNIVERSITY OF CHICAGO
School of Education

BOOKS RECEIVED

(The notice here given does not preclude the publishing of a comprehensive review.)

EDUCATION

- The Psychological Principles of Education: A Study in the Science of Education.* By HERMAN HARRELL HORNE. New York: The Macmillan Co., 1906. Pp. xiii+435. \$1.75.
- Annual Reports of the Department of the Interior: Commissioner of Education, 1904, Vols. I and II.* Washington: Government Printing Office, 1906. Pp. civ+2480.
- The Schoolmasters Yearbook and Directory, 1906.* London: Swan Sonnenschein & Co., 1906. Pp. xlix+456+562. 6 s.
- A History of Higher Education in America.* By Charles F. Thwing. New York: D. Appleton & Co., 1906. Pp. xiii+501.
- Everyday Ethics.* By ELLA LYMAN CABOT. New York: Henry Holt & Co., 1906. Pp. xiii+439.

ENGLISH

- Rhetoric and Composition.* By EDWARD FULTON. New York: Henry Holt & Co., 1906. Pp. x+259.
- Benjamin Franklin: His Life..* Condensed for school use, with Notes and a Continuation of His Life by D. H. MONTGOMERY, and Introduction by W. P. TRENT. Boston: Ginn & Co., 1906. Pp. xvii+311. \$0.40.
- Shakespeare's The Tempest.* Edited, with Introduction and Notes, by SIDNEY C. NEWSOM. New York: The Macmillan Co., 1906. Pp. lii+152. \$0.25.
- Dickens's Tale of Two Cities.* With Introduction and Notes by JAMES WEBER LINN. Boston: Ginn & Co., 1906. \$0.60.
- Selections from the Works of Joseph Addison.* With Introduction and Notes by EDWARD BLISS REED. New York: Henry Holt & Co., 1906. Pp. xxxii+360.
- The Poetry of Chaucer.* By ROBERT KILBURN ROOT. Boston: Houghton, Mifflin & Co., 1906. Pp. 298.
- Gaskell's Cranford.* Edited, with Introduction and Annotations, by WILLIAM EDWARD SIMONDS. Boston: Ginn & Co., 1906. Pp. xxiii+209. \$0.30.
- Matthew Arnold's Sohrab and Rustum, with Other Poems.* Edited for school and general use by W. P. TRENT and W. T. WEBSTER. Boston: Ginn & Co., 1906. Pp. xxv+107. \$0.25.

- Selections from Browning.* Edited, with Introduction and Notes, by ROBERT MORSS LOVETT. Boston: Ginn & Co., 1906. Pp. xxix+208. \$0.30.
- Fairy Stories Retold from St. Nicholas.* New York: The Century Co., 1906. Pp. 192.
- Harding of St. Timothy's.* By ARTHUR STANDWOOD PIER. Boston: Houghton, Mifflin & Co., 1906. Pp. 235. Illustrated. \$1.50.
- Exposition in Class-Room Practice.* By THEODORE C. MITCHELL and GEORGE R. CARPENTER. New York: The Macmillan Co., 1906. Pp. xv+373. \$0.70.
- Quentin Durward.* By SIR WALTER SCOTT. Edited for study by L. M. MUNGER, with biographical Introduction by SUSAN M. FRANCIS. Boston: Houghton, Mifflin & Co., 1906. Pp. xxix+461. \$0.60.
- Brooks's Readers.* By STRATTON D. BROOKS. New York: American Book Company, 1906.
- First Year. Pp. 128. Illustrated. \$0.25.
- Second Year. Pp. 176. Illustrated. \$0.35.
- Third Year. Pp. 248. Illustrated. \$0.40.
- Fourth and Fifth Years. Pp. 360. Illustrated. \$0.50.
- Sixth, Seventh, and Eighth Years. Pp. 446. Illustrated. \$0.60.

FRENCH

- L'Abbé Daniel.* Par ANDRÉ THEURIET. With Introduction, Notes, and Vocabulary by ROBERT L. TAYLOR. New York: Henry Holt & Co., 1906. Pp. vii+136.
- L'Étincelle: Comédie en un acte.* Par ÉDOUARD PAILLERON. Edited, with Introduction, Notes, and Vocabulary, by O. G. GUERLAC. New York: Henry Holt & Co., 1906. Pp. xvii+98.
- Féval's La Fée des Grèves.* Edited, with Introduction, Notes, Translation Exercises, and Vocabulary, by G. H. C. HAWTREY. Boston: Ginn & Co., 1906. Pp. xxvi+266. \$0.60.
- Molière's Le Tartuffe ou L'Imposteur.* Edited, with Introduction and Notes, by JOHN E. MATZKE. New York: Henry Holt & Co., 1906. Pp. xxvii+169.
- One Hundred Fables by La Fontaine.* Edited, with Introduction, Notes, and Vocabulary, by O. B. SUPER. Boston: Ginn & Co., 1906. Pp. xiv+187. With portrait. \$0.40.
- Labiche and Martin's Le Voyage de Monsieur Perrichon.* Edited by I. H. B. SPIERS. Boston: Ginn & Co., 1905. Pp. viii+143. With map. \$0.30.
- Pailleron's Le Monde ou l'on s'ennuie.* Edited with Introduction, Notes, Vocabulary, French Questions, and English Exercises, by WILLIAM RALEIGH PRICE. Boston: Ginn & Co., 1906. Pp. x+179. With portrait. \$0.40.

SCIENCE

- A Text-Book in General Zoology.* By HENRY R. LINVILLE and HENRY A. KELLY. Two hundred and thirty-three illustrations. Boston: Ginn & Co., 1906. Pp. x+462. \$1.50.
- A Laboratory Course in Physics for Secondary Schools.* By ROBERT ANDREWS MILLIKAN and HENRY GORGON GALE. Boston: Ginn & Co., 1906. Pp. x+134. \$0.40.
- The Elements of Physics.* By S. E. COLEMAN. Boston: D. C. Heath & Co., 1906. Pp. vii+439.
- Principles of Botany.* By JOSEPH Y. BERGEN and BRADLEY M. DAVIS. Boston: Ginn & Co., 1906. Pp. vii+555. Illustrated. \$1.50.
- Field, Laboratory, and Library Manual in Physical Geography.* By C. T. WRIGHT. Boston: Ginn & Co., 1906. Pp. xxii+178, and attached notebook. \$1.
- Atlas of Physiology and Anatomy of the Human Body:* A series of Colored Plates, with parts overlaid to show dissections. With descriptive matter prepared for schools, by ALFRED MASON AMADON. Boston: Little, Brown & Co., 1906. Pp. 50. \$3.50 net.
- Advanced Geography.* By CHARLES F. KING. New York: Charles Scribner's Sons, 1906. Pp. 288+xxv. Maps and illustrations.
- The Human Mechanism: Its Physiology and Hygiene and the Sanitation of Its Surroundings.* By THEODORE HOUGH and WILLIAM T. SEDGWICK. Boston: Ginn & Co., 1906. Pp. ix+564.

MATHEMATICS

- Practical Business Arithmetic.* By JOHN H. MOORE and GEORGE W. MINER. Boston: Ginn & Co., 1906. Pp. viii+449. \$1.

NOTES

NEW YORK STATE SCIENCE TEACHERS' ASSOCIATION

The next annual meeting of the New York State Science Teachers' Association will be held at Teachers College, Columbia University, New York City, December 26 and 27, in conjunction with the annual meeting of the American Association for the Advancement of Science. The programme is as follows:

Wednesday afternoon.—Dean James E. Russell; Dr. Kelly, Ethical Culture School, "Are High-School Courses in Science Adapted to the Needs of Adolescents?" W. M. Bennett, West High School, Rochester, "Some Demonstrations in Refraction and Dispersion of Light;" Professor Minchen, University of Rochester, "Demonstration: The Principle of Interference and Its Applications;" Henry R. Linville, De Witt Clinton High School, New York City, "Biology as Method and as Science in Secondary Schools;" Dr. Grace E. Cooley, Newark High School, "The High-School Biologist and the Citizen of Tomorrow;" Jennie T. Martin, Central High School, Buffalo, "Field Work in Physical Geography;" W. H. Platzer, High School, Poughkeepsie, "The Value of the Inductive Study of Relief Forms in Field-Work;" Professor Gale, University of Rochester, "The Place of Transformation Theory in Geometry;" Professor Keyser, Columbia University, "Concerning the Introduction of Modern Notions into the Geometry of Secondary Mathematics."

Wednesday evening.—Professor D. E. Smith, Teachers College, Columbia University, "The Preparation of the Teacher of Mathematics in Secondary Schools;" Professor E. L. Thorndike, Teachers College, Columbia University, "The Teaching of Science as Seen from the Outside."

Thursday forenoon.—Professor Mann, University of Chicago, "The New Move for the Reform of Physics Teaching in Germany, France, and America;" Professor Sherman Davis, Indiana University, "Purpose of Science in the Culture of the Adolescent;" J. M. Jameson, Pratt Institute, Brooklyn, "More Interesting Mechanics in the High School;" J. Y. Bergen, Cambridge, Mass., "Plant Physiology in Secondary Schools;" Professor Bigelow, Teachers College, Columbia University, "Some Established Principles of Nature-Study;" Lester B. Cary, High School, Buffalo, George T. Hargitt, High School, Syracuse, and James T. Peabody, Morris High School, New York City, "The Teaching of Biological Science in Some of the High Schools in New York State;" Professor Richardson, Syracuse University, "The Study of Minerals and Rocks in Physical Geography in the High School;" Dr. John M. Clarke, State Geologist, Barre, "Bar and Tickle;" A. W. Farnham, Oswego Normal School, "The Relation Which School Gardens May Bear to Industrial and Commercial Geography;" W. T. Morrey, Morris High School, New York City, "Use of Reference Books in Physical Geography by Pupils in the High School;" Professor Hawkes, Yale

University, "Secondary Mathematics from a College Standpoint;" C. B. Upton, Horace Mann High School, "What Equipment Does a High School Need for the Effective Teaching of Mathematics?" Professor Webb, Stevens Institute, "The Relation between High-School and College Mathematics."

Thursday afternoon.—Professor Hallock, Columbia University, "Demonstration: Optical Oddities;" Fred Z. Lewis, Boys' High School, Brooklyn, "Demonstration: Photomicrographs;" Professor Davis, Harvard University, "Laboratory Exercises in Physical Geography—Illustrated;" W. Betz, East High School, Rochester, "Open Questions in the Teaching of Elementary Geometry;" J. T. Rover, Central High School, Philadelphia, "The Necessity of Closer Affiliation of Mathematical Associations;" Dr. E. C. Hovey, American Museum of Natural History, "West Indian Volcanoes and Their Recent Eruptions—Illustrated."

Thursday evening.—Reception given by President Nicholas Murray Butler. Teachers of science and mathematics desiring to become members of the association may communicate with the undersigned.

TEACHERS COLLEGE, COLUMBIA UNIVERSITY
New York City

JOHN F. WOODHULL

In addition to the notice cited in the September number of the *Review*, the

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secretary of the National Educational Association makes the following statement concerning the semi-centennial volume and other matters:

In addition to the outline of matter given in the circular letter above referred to, valuable contributions have been secured from Dr. W. T. Harris, from Dr. E. E. Brown, the present United States commissioner of education, and also from various corresponding members in other countries who have written on phases of education in their respective countries during the past fifty years in a manner especially appropriate to the proposed volume. Among these may be mentioned the following: Cloudesley S. H. Brereton, examiner in modern languages of the Oxford and Cambridge Joint Board, has written on "The Development of Modern Language Teaching in England during the Past Fifty Years." Miss Dorothea Beale, principal of the famous Cheltenham Ladies' College, will write on "The Secondary Education of Girls in England for Fifty Years." Dr. Michael E. Sadler, member of the Royal Commission on Secondary Education, has sent a paper for the volume on "The Educational Awakening in England."

Dr. Pierre Emile Levasseur, professor at the College of France, has written on "Primary Education in France during the Third Republic." Camille See, counselor of state, and author of the law which created the secondary education of young women in France, has contributed a paper on "The History of the Secondary Education of Girls in France." Dr. Friedrich Paulsen, the eminent

Important Books in Science

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Especially fitted for college and normal-school classes and for those high schools that are equipped to give more than an average course in this subject.

Linville and Kelly's Zoölogy

A simple exposition of the science, intended chiefly for high-school use. A large part of the book is devoted to the insects and vertebrates.

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Columbus

and venerated professor of philosophy and pedagogics in the University of Berlin, has contributed a short chapter on "The Backward and Forward View of German Education and Philosophy." Bela de Tormay, counselor in the royal Hungarian ministry of agriculture at Budapest, has written a review of the "Development of Agricultural Education in the Schools of Hungary."

Similar papers appropriate to this volume are promised by other corresponding members in foreign countries. A report of the Congress of Education at Liège, Belgium, held a year ago, will be supplied by the official delegate of the National Educational Association to that congress, Professor Will S. Monroe, of Worcester, Mass.

The Board of Trustees, at a recent meeting in New York City, elected Dr. Nicholas Murray Butler chairman of the board to succeed Mr. A. G. Lane, whose death occurred in August last. The securities of the permanent fund of the Association were placed in the custody of the First Trust and Savings Bank of Chicago in 1904-5. These securities will remain in the same depository.

The Executive Committee have under consideration invitations for the next convention, in July, 1907, from the Jamestown Exposition Company; Baltimore; Philadelphia; Toronto; Denver; and Portland, Ore. It is expected that a decision may be reached and an announcement made before December 1.

IRWIN SHEPARD

POPULAR HIGH SCHOOL BOOKS

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Essentials of Algebra

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CHICAGO

NOTES

Practical Mathematics. By DANIEL A. MURRAY, Professor of Mathematics in Dalhousie College, Halifax, N. S. Chicago and New York: Longmans. Pp. 113+x. Cloth.

The Foundations of Higher Arithmetic. By B. F. SISK, M.S., Instructor in Senior Arithmetic and Grammar in the Austin High School, Austin Tex. Chicago: Silver, Burdett & Co. Pp. 203+vi. Cloth.

A name more truly descriptive of the contents of the first-mentioned book would be *The Rudiments of Trigonometry for High Schools*. Any attempt to put before high-school classes the more useful, in contradistinction to the customary, formal phases of mathematics deserves nothing but unstinted commendation. This book is such an attempt. The only rational explanation the writer can find for the universal practice in American secondary schools of feeding pupils for from two to four years on the mere husks of mathematical formalism is the binding force of tradition and the disinclination of schoolmen to break away from what they have learned to administer. The wonder is, not that so many boys leave school early, but rather that any high-school pupils develop enough interest in mathematical subjects to induce them to enter the pursuits of life that require mathematics. Mathematics of a *really* practical sort in the earlier stages of high-school study would do as much as any other one thing toward bringing the immense importance of mathematics home to pupils while they are yet young enough to profit by the study of it. This book has doubtless grown out of some such thought.

But practical mathematics rightly conceived does not consist in digesting and desiccating mathematical subjects into an essence of formalism, first developing the necessary notions by an attempt at rigorous deduction, and then, after *the teaching is really done*, giving the pupil an opportunity to *apply* what he is supposed to have

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NOTES

learned. This is the method of American correspondence schools, and is too largely the method of this book. To adapt the trigonometry of current texts to real use anywhere, and particularly to the high school, it is not so much the pruning knife as the hypodermic syringe that is needed. It is an injection of real, as opposed to artificial, subject-matter that will help. Not one in a hundred of the real problems of the actual world that call for trigonometric methods, is a problem of measuring heights of trees, hills, and balloons, while a very large percentage of the problems of the book is of this sort. This book is no exception in this regard.

The author shows good judgment in the selection of the topics to be treated, in the fact, not in the manner, of condensation of treatment, and in the extended use of graphical methods. The writer does not believe in the author's method of first giving the definitions—no matter if they are shouted at the pupil with black-faced type—then a few illustrations to convince the pupil that the author, at least, knows what he is talking about, then giving deductive derivations of formal laws, and, lastly, some applications.

A much better method is to start by an attempt to solve informally a problem that has in it a point to the pupil, then as terms and ideas arise that need definition, give the definitions. After a few problems have been carried through by class and teacher together, then is the time to develop the necessary body of formal machinery for handling problems of the class that are being dealt with. Then applications have their place. In essence, first the informal use of the new ideas, then the formal study, then the application and problem stage. In this way the pupil feels, first, the need for the formal process, and, finally, through the greater ease with which he solves the problems, he feels the great gain that accrues to him through the mastery of process. Some interesting work on the slope of curves, and angles between curves, and a well-arranged logarithm table conclude the book.

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NOTES

The author does well in eliminating goniometry, but should have made the problems a more important feature in the development of principles. A trigonometry for high schools should be essentially a book on problem-solving. What trigonometric method is given should be incidental, and should *seem to the pupil* to be necessary to the solution of problems, and that, too, while he is studying the method.

The typographical work and general make-up of the book are decidedly good.

The second book is little more than a study of the formal phases of such arithmetic as is covered in the eight grades of the elementary public schools, interlarded with pedagogical, etymological, and historical notes. The book impresses one as being a body of printed notes for a course of lectures on arithmetic such as one might give to a class of normal-school students, who are not very well equipped in the subject-matter of grade arithmetic. It is the old-school type of normal-school work, backed up by a little more of the rational accounting for things than was customary in those days.

The reader who is led by the title, *The Foundations of Higher Arithmetic*, to expect to find a critical inquiry into the grounds of arithmetic, will be disappointed on reading the book. Normal-school students who desire a brief résumé of formal arithmetic will find the book profitable, but the writer does not agree with the prefatory remark that the book is suitable to the needs of advanced classes in high schools, though such pupils would find no difficulty in understanding it. The pedagogic scaffolding is too plain and the matter is too simple for high schools.

To define unit, the author quotes from Mr. J. C. Glashan that "a *unit* is any standard of reference employed in counting any collection of objects, or in measuring any magnitude." The writer raises the question whether this satisfactorily covers the case of the value of the ratio of two equal numbers.

With the necessity that some would put upon us of distinguishing *partition*, com-

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By ELMER BURRITT BRYAN, President of Franklin College

A plain statement of facts and principles that will be of special benefit to educators and students of elementary pedagogy, put into readable and popular form.

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NOTES

parison, ratio, and division, the author would call (see p. 24, note) for a distinction between *subtractional* and *partitive* division. An unusually extended treatment of exchange is given, with emphasis on South American exchange. A Texas state examination, with a Kansas county examination paper close the book.

The typography of the book is good, though the artistic merit of the cover is open to some criticism. The book is one of Silver, Burdett & Co.'s Standard Series.

G. W. MYERS.

DEPARTMENT OF SUPERINTENDENCE

THE DEPARTMENT OF SUPERINTENDENCE of the NATIONAL EDUCATIONAL ASSOCIATION will hold its next annual meetings in Louisville, Ky., February 27, 28, and March 1, 1906.

All railroads north of the Ohio and Potomac Rivers, westward from New York city, and eastward from Montana and from Cheyenne, Wyo., have granted for this meeting a round-trip rate of one and one-third fare on the certificate plan. It is expected that the railroads of New England and of the Southwestern Excursion Bureau will join in granting the above rates. All railroads south of the Potomac and Ohio Rivers and east of the Mississippi River have granted a rate of one fare plus 25 cents for the round trip.

All local arrangements for the meeting of the department in Louisville have been completed. An Executive Committee has been appointed, of which E. H. Mark, superintendent of schools of Louisville, is chairman. Various subcommittees have also been appointed, on hotels, boarding-houses, publicity, finance, reception, and excursions. SUPERINTENDENT MARK will be pleased to answer inquiries concerning local arrangements for the meeting

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<i>Grady</i> —The New South, and Other Addresses25

NOTES

- b) The Effect of Moral Education in the Public School upon the Civic Life of the Community—W. O. Thompson, president of Ohio State University, Columbus, Ohio.
Discussion led by William J. Shearer, superintendent of schools, Elizabeth, N. J.

2:30 p. m.

1. Woman's Part in Public School Education—Mrs. Sarah E. Hyre, member of the board of education, Cleveland, Ohio.
Discussion.
2. What Kind of Education is Best Suited to Boys in the Grades and High School?—Reuben Post Halleck, principal of the Boys' High School, Louisville, Ky.
3. What Kind of Education is Best Suited to Girls in the Grades and in the High School?—(speaker to be announced later).
Discussion.
4. Appointment of committees.

8:15 p. m.

1. The Study of Arithmetic in American Schools—Dr. Simon Newcomb.
2. Address—(subject and speaker to be announced later).

WEDNESDAY, FEBRUARY 28

9:30 a. m.

Topic: "Means of Improving the Efficiency of the Grammar School."

- a) Suggestions for the Improvement of the Study Period—Frank M. McMurry, professor of theory and practice of teaching, Teachers College, Columbia University, New York City.
- b) Eliminations and Modifications in the Course of Study—Martin G. Brumbaugh, professor of pedagogy, University of Pennsylvania, Philadelphia, Pa.

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This book enables students to complete quadratics during the first year. The treatment of factoring is adequate. The graph is introduced early, being taken up with the equation, and is developed fully. The problems are entirely new. Many problems are related to physics, and the notation of physics is used in many of the drill exercises. Solutions throughout are required for other quantities than x , y and z .

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**Boston
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NOTES

- c) How Can the Supervising Influence of Grammar School Principles Be Improved?—Lewis H. Jones, president of State Normal College, Ypsilanti, Mich.
- d) Discussion of Dr. Newcomb's address.
- e) General discussion.

11:30 a. m.

Business meeting.

2:30 p. m.

- A. Round Table, City Superintendents of the Larger Cities. Leader, Dr. Ida C. Bender, supervisor of primary grades, Buffalo, N. Y.
- B. Round Table, City Superintendents of the Medium and Smaller Cities. Leader, James H. Phillips, superintendent of schools, Birmingham, Ala.
- C. Round Table, State and County Superintendents. Leader, C. P. Cary, state superintendent of public instruction, Madison, Wis.
- D. Round Table for the Discussion of Reformed Spelling. Leader, W. H. Elson, superintendent of schools, Grand Rapids, Mich.

8:15 p. m.

- 1. The Incurable Child—Miss Julia Richman, district superintendent of schools, New York City.
- 2. Address—(subject to be announced later)—Judge Ben B. Lindsey, Denver, Colo.

THURSDAY, MARCH 1

9:30 a. m.

- 1. Public-School Conditions in the Southwest Territories—(speaker to be announced later).
Discussion.

IN PRESS

MILLIKAN AND GALE'S FIRST COURSE IN PHYSICS

By ROBERT A. MILLIKAN, Assistant Professor of Physics in the University of Chicago, and HENRY G. GALE, Instructor in Physics in the University of Chicago.

A one-year course in physics which has grown out of the experience of the authors in developing the work in physics at the High School of the University of Chicago, and in dealing with the physics instruction in affiliated high schools and academies.

The book is a simple, objective presentation of the subject as opposed to a formal and mathematical one.

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A thorough revision of this standard text-book including a large number of entirely new problems. The volume is designed for use in high schools and academies and contains an ample amount of work for admission to any college.

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2. What Should Be the Basis for the Promotion of Teachers and the Increase of Teachers' Salaries?—James H. Van Sickle, superintendent of schools, Baltimore, Md.
3. The Next Step in the Salary Campaign—(speaker to be announced later). Discussion—Led by Miss Adelaide S. Baylor, superintendent of schools, Wabash, Ind.

2:30 p. m.

Topic: "Industrial Training in the Public Schools."

- a) What Form of Industrial Form of Training is Most Practical and Best Suited to the Country Child?—O. J. Kern, superintendent of schools for Winnebago County, Rockford, Ill.
- b) What Form of Industrial Training is Most Practical and Best Suited to the City Child? Charles H. Keyes, superintendent of schools, South District, Hartford, Conn.
- c) Art as Related to Manual Training—(speaker to be announced later). Discussion.

Report of Committee on Resolutions.

SOCIETIES MEETING WITH THE DEPARTMENT OF SUPERINTENDENCE

I. THE NATIONAL SOCIETY FOR THE SCIENTIFIC STUDY OF EDUCATION

General Topic: "The Teaching of English in Elementary and High Schools."

Discussion will be based upon the society's *Fifth Yearbook*, in which George P. Brown, of Bloomington, Ill., will present a comprehensive study of the general topic. Discussion will focus upon the following aspects of the problem: (1) The nature and function of language; its modes of genesis in the race and the individual; fundamental general principles underlying its purpose and method in

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Two short stories, simple enough in style and language for very early reading but attractive to students of any age.

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Edited by ARNOLD GUYOT CAMERON

Selections of prose and poetry illustrating the versatile and dramatic talent of one of the most brilliant of French authors.

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education. (2) Language and composition: purpose, nature, method, and place in the course of study. (3) Grammar (treatment same as for language and composition). (4) Literature (treatment same as for grammar).

The *Yearbook* will be sent to members a few weeks in advance of the meeting.

The first session of the society will be held on Monday evening, February 26. The exact time and place for all the meetings will be announced in the final program-bulletin of the Department of Superintendence.

II. EDUCATIONAL PRESS ASSOCIATION OF AMERICA

Papers will be presented on Wednesday, February 28, at 2:30 P. M., by S. Y. Gillan, editor of the *Western Teacher*, and Mrs. Eva D. Kellogg, editor of *Primary Education*.

III. SOCIETY OF COLLEGE TEACHERS OF EDUCATION

A paper on "The Principles of Education" will be presented by Professor John A. MacVannel, of Teachers College, Columbia University, New York City. The paper will be printed and distributed to members before the meeting.

Discussion by Professor John Dewey, of Columbia University; Professor Frederick E. Bolton, of Iowa University; and Professor Bergstroem, of Indiana University.

Information respecting the time and place of meeting will be furnished later.

A complete program, with necessary changes and additions, including detailed information as to railroad rates, etc., will be issued about February 1, and may be obtained on application to any of the officers of the department, to E. H. MARK, chairman of the Local Committee, Louisville, Ky., or to IRWIN SHEPARD, General Secretary of the N. E. A., Winona, Minn.

Old Heidelberg for Class Use

MEYER-FÖRSTER'S KARL HEINRICH

Karl Heinrich; Erzählung von Wilhelm Meyer-Förster, edited with introduction, notes and vocabulary by HERBERT CHARLES SANBORN, A.M., Bancroft School, Worcester, Mass. Cloth, 393 pages. Price, 80 cents; by mail, 88 cents.

I consider "Karl Heinrich" by Meyer-Förster one of the most delightful of German stories which I have ever read. It is interesting and fascinating from beginning to end, and cannot fail to attract the student.

This book cannot help recommending itself, especially to older students who might not be shocked by some of the student customs, so foreign to American ideas of propriety, etc. Being a German myself I try to look at our German ways from the American's standpoint, so as to be more patient with these prejudices. The story to me seems very beautiful, and human, and natural.

The notes and vocabulary are very satisfactory.

ADELE FUCHS, Teacher of German,
Des Moines (Iowa) High School.

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18 E. Seventeenth St. New York

378 Wabash Ave. Chicago

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Table II. Classified Yearly Salaries of Teachers (not including Principals) in High Schools.

Table III. Classified Yearly Salaries of Principals of Elementary Schools.

Table IV. Classified Yearly Salaries of Teachers (not Including Principals) in Elementary Schools.

Following these tables are discussions of the report by Charles H. Verrill, Statistician of the U. S. Bureau of Labor, giving a complete analysis of the tables. and their applications to present salaries; by Albert G. Lane, District Superintendent of Schools of Chicago; and by Andrew S. Draper, Commissioner of Education for the state of New York.

It is the desire of the Association to secure for this report the largest possible circulation in order that all movements for the improvement of teachers' salaries may be made in the light of existing facts.

The active members of the Association are requested to aid in extending the circulation of this report among teachers, and especially among school officers and others interested in the question of compensation of teachers.

The report will be sent, carriage prepaid, for 50 cents (with a discount of 20 per cent. for ten or more copies to one address), which is the cost of printing and postage without including any part of the large expense involved in the preparation of the report.

OTHER REPORTS

The following reports of Special Committees of Investigation, which were also presented at the Asbury Park meeting, are offered at the nominal prices indicated:

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By **S. E. COLEMAN**. A book in every respect modern and practical. Being similar in plan to the best books now on the market, but better in execution, it will meet the needs of the large class of schools that have become dissatisfied with the present books.

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Report of Committee on Taxation as Related to Public Education . . \$0.10
 Report of Committee on Industrial Education in Rural Schools . . . 0.10

Below will be found a list of other special reports issued by Committees of Investigation of the National Educational Association, which will be supplied at the prices named. The assistance of the active members of the Association is solicited in securing an extensive sale of all of the reports issued by the Association. In this way only can the largest possible results be realized from the work of investigation which has been conducted by the Association during recent years.

*Report of Committee of Ten on Secondary Schools, pp. 249 . . \$0.30
 *Report of Committee of Fifteen on Elementary Schools, pp. 235 . . 0.30
 Report of Committee on Rural Schools, pp. 228 0.25
 Report of Committee on College-Entrance Requirements, pp. 188 . . 0.25
 Report of Committee on Normal Schools, pp. 64 0.10
 Report of Committee on Public Libraries and Public Schools, pp. 80 . 0.10

A discount of 20 per cent. is allowed on orders of ten copies or more to one address, except on the reports of the Committee of Ten and the Committee of Fifteen.

IRWIN SHEPARD, *Secretary*,
 Winona, Minn.

*The reports of the Committee of Ten and the Committee of Fifteen are printed and supplied by the American Book Company, for 30 cents each.

NEARLY READY A FIRST COURSE IN PHYSICS

By Robert A. Millikan, Assistant Professor of Physics in the University of Chicago, and
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This one-year course in physics has grown out of the experience of the authors in developing the work in physics at the School of Education of the University of Chicago, and in dealing with the physics instruction in affiliated high schools and academies.

The book is a simple, objective presentation of the subject as opposed to a formal and mathematical one.

BOOKS ON LATIN COMPOSITION

By Benjamin L. D'Ooge, Professor of Latin and Greek in the Michigan
 State Normal College, Ypsilanti, Mich.

LATIN COMPOSITION FOR SECONDARY SCHOOLS—A unique work combining the systematic presentation of syntax with exercises based directly on the text.

LATIN COMPOSITION TO ACCOMPANY SECOND YEAR LATIN—Designed for schools which precede their study of Cicero with second year Latin.

LATIN COMPOSITION TABLET.

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By William C. Collar, Head Master of the Roxbury Latin School, Boston

One year's work in speaking, reading, and writing German laid out in orderly progression for beginners having not less than four hours a week.

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The State University, Leland Stanford Junior University, and the state normal schools will co-operate in special plans for entertaining the members of the Association. It is expected that one general session will be held in the Greek Theater of the State University at Berkeley, and that arrangements will be made for a meeting, during or following the convention, in the beautiful chapel of Leland Stanford Junior University at Palo Alto. Special excursions to the great number of interesting points about San Francisco, under the management of the Local Convention Committee, will follow the sessions of the convention.

The railroad rates and arrangements granted by the Trans-Continental Passenger Association are as follows:

A rate of one fare for the round trip, plus the \$2 N. E. A. membership fee, from Chicago and points westward throughout the territory of that Association. Dates of sale, June 25 to July 7, inclusive. Stop-over privileges, both going and returning, at all points in California and west of Duluth, St. Paul, Missouri River common points, and eastern Texas points. Privilege of going one route and returning another without extra charge, except that an extra charge of \$12.50 is made on tickets reading one way via Portland, Oregon. Tickets good to return to starting-point until September 15, 1906.

It is expected that all other passenger associations will concur in the rates and ticket conditions tendered by the Trans-Continental Association, and will extend the same rates and privileges to all points in the United States and Canada.

With these liberal rates and ticket conditions, it is believed that a large number of the members of the Association, and of other teachers, will plan to attend the Forty-fifth Convention in San Francisco, and to spend at least a part of their vacation on the Pacific coast.

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The Hygiene of the

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By William F. Barry, M.D.

Suggestions on all that contributes to the health of the child in school—the sanitary conditions of schoolhouses, physical training and the judicious treatment of mental defects

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Fundamental facts of science and principles of education stated plainly, in readable popular form, full of new and original ideas and of fresh light shed upon old questions

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THE SAN FRANCISCO CONVENTION OF THE N. E. A.

There will be six general sessions, commencing at 2:30 P. M., Monday, July 9, besides three special sessions, as follows: On Wednesday afternoon, a session in the Greek Theater of the State University, at Berkeley—distant one hour's ride by boat across the bay and by rail; on Wednesday evening, an entertainment by the musical organizations of San Francisco; on Saturday morning, July 14, a session in the Chapel of Leland Stanford Junior University at Palo Alto—distant one hour's ride by rail down the Santa Clara Valley.

The leading topics for the general sessions are, "The Making of a Teacher;" "The Compensation of Teachers;" "The Personality of the Teacher;" "The Teacher as a Citizen;" "Economic Relation of the School;" "Special Education;" and "Growth." This last topic will be presented by Luther Burbank, the eminent Californian naturalist. An address on the chief characteristics of "California and the Pacific Coast" will be a prominent feature of the closing session. The programs for the three special sessions will be arranged by the Local Program Committee.

The sessions of the National Council will begin on Saturday, July 7. The dates of the convention are therefore extended to July 7-14 inclusive, the first general sessions of the Association occurring on the afternoon of Monday, July 9. It is expected that Sunday, July 8, will be an Educational Sunday, with provisions for the discussion of appropriate educational topics in the various churches of San Francisco.

The Department of Indian Education will hold an institute for teachers of Indian schools both before and after the convention.

INTRODUCTION TO General Inorganic Chemistry

—By—

Alexander Smith

Professor of Chemistry in the University of Chicago

12mo. 800 pages, \$2.25 net

¶This book, the first draft of which was written six years ago, is the outgrowth of the introductory course in Chemistry which the author has given for the past fifteen years. ¶It is intended primarily for students beginning the study in a college, university, or professional school. ¶It is a little longer than the usual text, not because more theory is given but because, in order to make the theory clearer to the beginner, the explanations are often fuller. ¶No conception or principle is given at all, unless, in its most elementary aspects, it can be made clear to the beginner. (About 800 pages. Ready March 1st.)

For Further Information Address the Publishers

**The Century Co.,
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\$5,000 IN CASH PRIZES !

To the Teachers of America:

[To evidence its appreciation of the National Education Association's selection of the Pacific coast as the scene of its next annual convention at San Francisco, Cal., July 9 to 13 inclusive, and to encourage delegates to include Portland and Oregon in their itinerary, the Portland Commercial Club offers FIVE THOUSAND DOLLARS in prizes for articles on Portland, Oregon, and this section of the United States, as follows:

First prize	\$1,000
Second prize	500
Third prize	250
Fourth prize	200
Fifth prize	175
Sixth prize	150
Seventh prize	125
Eighth prize	110
Ninth prize	100
Tenth prize	90
Ten prizes of \$75 each	750
Ten prizes of \$50 each	500
Ten prizes of \$25 each	250
Twenty prizes of \$15 each	300
Twenty prizes of \$10 each	200
Judges (to be acceptable to the officers of the National Educational Association)	300
Grand total	\$5,000

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In order to be eligible for competition these articles must appear in a regular edition of some newspaper or other publication printed outside of the states of Oregon and Washington, said publication (complete) to be in the hands of the judges not later than October 1, 1906. These articles must be sealed and addressed to **TEACHERS' CONTEST**, Care Portland Commercial Club, Portland, Oregon.

They will be opened by the judges. Prizes will be awarded strictly on the merits of the articles. Contestants can treat any phase of the subject that appeals to them—natural resources, scenery, irrigation, agriculture and horticulture, history, educational and religious advantages, climatic or social conditions, etc.—or in a more comprehensive vein. The judges will be absolutely untrammelled in making their decisions.

This offer is made, not so much with a view of having the country "boomed" in the common acceptance of that term, as to have the teachers of the country become more familiar with this portion of the United States and give expression to their views in such articles as will be acceptable to papers throughout the entire Union.

TOM RICHARDSON, Manager,

Portland Commercial Club,
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The Massachusetts Civil Service Reform Auxiliary offers, free of expense, pamphlets on civil-service reform to grammar schools, high schools, normal schools, and colleges willing to make these pamphlets the subject of a lesson in

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their civics or American history course. During the past five years over 125,000 of the pamphlets have been distributed to more than 1,500 schools and colleges scattered throughout every state and territory of the United States.

The titles of two of the pamphlets whose educational value has been so widely recognized by our teachers are *The Merit System*, *The Spoils System*, by Edward Cary, and *The Merit System in Municipalities*, by Clinton Rogers Woodruff. A third, simpler pamphlet, prepared by Miss Elizabeth Luther Cary for grammar-school use, is called *A Primer of the Civil Service and the Merit System*. As the circulation of this offer directly to the heads of schools and colleges must of necessity be gradual, the Massachusetts Auxiliary takes pleasure in announcing to teachers and others interested in the subject that copies of the above pamphlets, together with other of its publications, may be obtained free on application to the Assistant Secretary, MISS MARIAN C. NICHOLS, 55 Mount Vernon Street, Boston, Mass.

The flexibility of the great universities of the Mississippi valley in adjusting instruction to the convenience of their students has long been the subject of remark. Within a few weeks this western characteristic has received another illustration. The University of Wisconsin, in its Summer Session announcement for 1906, has lightened the residence requirement for graduate students. The new regulations provide that the candidate may secure the Master's degree by attending three Summer Sessions (of six weeks) and pursuing a definite line of study

NOTABLE NEW PUBLICATIONS

— of —
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THE FIRST YEAR OF LATIN - - - \$1.00

By W. B. GUNNISON and W. S. HARLEY
Clear and logical presentation of grammar with excellent review lessons

THE ESSENTIALS OF ALGEBRA - - - \$1.00

By ROBERT J. ALEY and DAVID A. ROTHROCK
A comprehensive, up-to-date text-book for secondary schools.

THE ELEMENTS OF GEOMETRY - - - \$1.25

By WALTER N. BUSH and JOHN B. CLARKE
A presentation of essentials, arranged by groups, with helpful diagrams.

THE MAKING OF THE AMERICAN NATION - - - \$1.00

By JACQUES W. REDWAY
Especially stress laid on the economic, social and civic aspects.

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An illustrated edition of the best of the author's poems, and five representative tales. A valuable addition to

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during the intervening months. The new requirements obviously appeal to ambitious high-school teachers and others whose university residence is necessarily limited to a portion of the summer vacation.

The *Annual Announcement* of the Ninth Assembly of the Colorado Chautauqua to be held in Boulder, Colo., will be ready for distribution about March 1, and all desiring to receive copies thereof should send their names at once to the secretary of the association. The announcement will be a handsome booklet of forty-eight pages, printed in two colors and containing many beautiful scenic cuts. Full information also will be given concerning the platform program, the courses of the summer school, the excursions, the expense, etc., etc. The book is free for the asking, and will point the way for a very pleasant and profitable summer's outing.

In order to provide selections from some of the great classic writers in French literature, D. C. Heath & Co., Boston, have already arranged to add to their "Modern Language Series" selections from thirteen, including Montaigne, Montesquieu, Rousseau, Chateaubriand, and St. Beuve, edited with adequate introductions and notes by distinguished scholars. The first text to appear is selections from La Bruyère's *Caractères*, edited with introduction and notes by Professor F. M. Warren, of Yale University. This is now in press, and will soon appear.

A History of Mediaeval and Modern Europe

By HENRY E. BOURNE

Professor in the College for Women, Western Reserve University; Author of "The Teaching of History and Civics." With Maps and Illustrations. 502 pages. \$1.50.

This book differs from most school histories. It deals with the subject by a method which, it is believed, will make the study easier for the pupil because the text is so arranged that the necessary correlation of events can hardly be escaped. The author's method requires the pupil constantly to group events, thus forcing him to try to discover their relations and gain more of their meaning. The teacher, therefore, should obtain greater results.

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91-93 FIFTH AVENUE, NEW YORK

BOOK REVIEWS

School History of the United States. By HENRY WILLIAM ELSON. New York: MacMillan Co., 1906. Pp. xxviii+467. \$0.90.

American History in Literature. In two volumes. Compiled by MARTHA A. L. LANE AND MABEL HILL. New York: Ginn & Co., 1905. Pp. x+178 (Vol. I). List price, \$0.50. Vol. II in preparation.

GERMAN

Bacon's New German Course: Comprising in One Volume The Essentials of the Grammar with a Conversational Reader and Complete Vocabularies. By EDWIN F. BACON. New York: Maynard, Merrill & Co., 1906. Pp. xiii+372+xiv.

Two German Tales: Wigo, by KARL JACOBSEN, and *Der Tschokoi*, by JOHANNES KRANER. Edited by MAX LENTZ. Boston: Silver, Burdett & Co., 1905. Pp. vi+108. •

ENGLISH

Language Lessons from Literature. Book I. By ALICE WOODWORTH COOLEY AND W. F. WEBSTER. Boston: Houghton, Mifflin & Co., 1905. Pp. xxii+270.

PRIMARY ARITHMETIC

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By BRUCE M. WATSON, *Head of Department of Mathematics, High School, Syracuse, N. Y.*, and CHARLES E. WHITE, *Principal of Franklin School, Syracuse, N. Y.*

Containing work for the first four years in school.

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Language, Grammar, and Composition. Book II. By W. F. WEBSTER AND ALICE WOODWORTH COOLEY. Boston: Houghton, Mifflin & Co., 1905. Pp. xiv+385.

The English Mail-Coach and Joan of Arc. By DE QUINCEY. Edited, with Introduction and Notes, by MILTON HAIGHT TURK. Boston: Ginn & Co., 1905. Pp. xvi+121.

Sesame and Lillies. By JOHN RUSKIN. With Introduction and Notes by MRS. LOIS G. HUFFORD. Boston: Ginn & Co., 1905. Pp. xxviii+107.

Selected Poems and Tales of Edgar Allan Poe. Edited, with Introduction and Notes, by CHARLES MARSHALL GRAVES. New York: Silver, Burdett & Co., 1906. Pp. xxx+158.

The edition includes more than a score of poems and the tales of "Morella," "The Fall of the House of Usher," "Eleonora," "The Masque of the Red Death," and "The Gold-Bug." The volume is attractively printed and contains numerous illustrations.

Wilderness Babies. By JULIA AUGUSTA SCHWARTZ. Illustrated from Drawings by JOHN HUYBERS and from Photographs. School Edition. Boston: Little, Brown & Co., 1906. Pp. xiii+164.

Daniel Webster for Young Americans: Comprising the Greatest Speeches of the Defender of the Constitution. With Notes by CHARLES F. RICHARDSON. Boston: Little, Brown & Co., 1906. Pp. x+216.

In this selection are included the speeches on "The Bunker Hill Monument," on "Adams and Jefferson," "The Reply to Hayne," "The Character of Washington," "The Constitution and the Union," and several others.

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Wentworth's Elementary Algebra

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The Sketch-Book. Part II: Essays. By WASHINGTON IRVING. Edited, with an Introduction and Notes, by EDWARD EVERETT HALE. New York: University Publishing Co., 1905. Pp. xix + 103.

MATHEMATICS

The Elements of Geometry. By BUSH AND CLARKE. New York: Silver, Burdett & Co., 1905. Pp. xii + 355.

SCIENCE

General Inorganic Chemistry. By ALEXANDER SMITH. New York: Century Co., 1906. Pp. xviii + 780.

Nature and Health: A Popular Treatise on the Hygiene of the Person and the Home. By EDWARD CURTISS. New York: Henry Holt & Co., 1906. Pp. ix + 313.

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NOTES

NOTES ON THE NEW MOVEMENT AMONG PHYSICS TEACHERS

The Committee of the Central Association of Science and Mathematics Teachers regrets much that it is not yet able to report the complete returns from the circular letter sent out by it. Up to the time of going to press, 285 answers to this circular have been received. As far as counted, the vote on the list of experiments shows that the following are at present favored by at least two-thirds of those voting: (1) weight of unit volume; (2) lifting effect of water on body immersed in it; (3) specific gravity of a solid heavier than water; (4) specific gravity of a block of wood with a sinker; (7) specific gravity of a liquid; (8) the straight lever; (13) three forces in one plane applied at one point; (26) pendulum; (28) Boyle's Law; (30) barometer; (36) testing a mercury thermometer; (37) linear expansion of solid; (41) specific heat; (42) latent heat of ice; (57) wave-length of sound by resonance; (62) phenomena of magnetism; (63) magnetic field with iron filings; (66) single-fluid cell; (70) induced currents; (71) resistance by substitution; (72) Wheatstone Bridge; (84) phenomena of optics; (88) index of refraction of glass; (91) focal length of a converging lens; (93) shape and size of an image formed by lens; (100) photometry.

The complete returns will be issued in circular form early in May. Since sending out the circular other associations have become interested in the work, and several have appointed committees to co-operate in it. The second circular will therefore be issued by joint action of several committees. Anyone who has not answered the first circular, but who wishes to receive the further documents connected with this work, is invited to send a request for the same to the committee.

C. R. MANN, University of Chicago.

C. H. SMITH, Hyde Park High School, Chicago

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The fifteenth Summer Session of six weeks at Cornell University will open July 5 next. The program for this year shows enlargement in several ways. There are more courses in Education, History and Civics, Chemistry, and English. Manual Training, both theory and shop practice, is provided for, and there are new courses in Drawing and Design, and in Photography in all its forms. As hitherto, the earth sciences, Botany and Nature Study, are fully presented. Eleven members of the faculty come from other institutions this year.

For the photograph of the theater of the University of California which is reproduced as the frontispiece of this number, the *School Review* is indebted to the San Francisco committee of the National Educational Association.



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CONTENTS FOR DECEMBER, 1906

The Tutorial System in College	Andrew F. West	705
Small vs. Large Colleges	William J. Tucker	717
Limited Segregation	J. E. Armstrong	726
The Washington Decision on the High-School Fraternity Question		739
The New Movement among Physics Teachers—Circular IV		746
Standard Examinations for Non-College Pupils	Mary E. Haskell	754
Discussion: College Entrance Requirements in French and German	William C. Collar	758
Editorial Notes		760
The Williamstown Conference		
The High School Library Problem		
Book Reviews		764
<p>Jenks, Citizenship and the School, <i>Edward E. Hill</i>, 764; Thorndike, The Principles of Teaching, Based on Psychology, <i>J. L. Meriam</i>, 765; Mitchell and Carpenter, Exposition in Class-Room Practice, <i>H. E. Coblenz</i>, 766; McMullen, Forty Lessons in Physics, <i>Ernest J. Andrews</i>, 768; Leacock, Elements of Political Science, <i>Edward E. Hill</i>, 770; Barss, Beginning Latin; Hill, A Help for Latin Students, <i>Louis M. Sears</i>, 771; Kinard, English Grammar for Beginners; Bartlett and McBain, The Elements of English Grammar, <i>James F. Hosc</i>, 772; Amadon, Atlas of Physiology and Anatomy of the Human Body, <i>I. B. Myers</i>, 773.</p>		
Books Received		774
Notes		777
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The Williamstown Conference		
The High-School Library Problem		
Book Reviews		764
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A Complete Catalogue of Publications Sent on Request

Bulletin of Recent Publications and Autumn Announcements of The University of Chicago Press

Railway Organization and Working

Edited by ERNEST RITSON DEWSNUP, Professorial Lecturer on Railways
in the University of Chicago

510 pages, small 8vo, cloth; net \$2.00; postpaid \$2.15

THIS unique and significant book is a collection of lectures delivered before the railway classes of the University of Chicago by more than a score of railway experts of national reputation. The lectures have been carefully edited, and the result is a concise, practical manual covering almost every conceivable phase of the railway business. The language throughout is clear-cut and non-technical, and easy for the general reader to follow.

The book deserves, and will doubtless be accorded, wide and enduring popularity. It is equally adapted to university classes in railway economics, to the rank and file of railway employees wishing to increase their professional efficiency, and to the intelligent public interested in the many problems of the American railway.

Railway Organization and Working is a companion-volume to

Lectures on Commerce

Edited by HENRY RAND HATFIELD, formerly Assistant Professor of
Political Economy, and Dean of the College of Commerce and Adminis-
tration, at the University of Chicago

396 pages, small 8vo, cloth; net \$1.50, postpaid \$1.63

PUBLISHED in 1904, with a second edition the same year, this book has already become known to wide circles of readers. Like the foregoing, it consists of a series of lectures delivered before university classes. It is a compendium of views by eminent authorities on the subjects of railways, trade and industry, banking and insurance, and is a handbook of great practical value to economists, railway men, investors, and commercial educators.

"Full of valuable information."—*The Engineer.*

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"This great fund of special knowledge is furnished by men who have won eminence in their respective fields, and the volume may be unqualifiedly recommended."—*Cincinnati Times-Star.*

Ancient Records of Egypt: Historical Documents from the Earliest Times to the Persian Conquest

Collected, Edited, and Translated with Commentary by JAMES HENRY BREASTED, Professor of Egyptology and Oriental History in the University of Chicago; Author of *A History of Egypt*; Member of the Editorial Staff of the *Egyptian Dictionary* in preparation by the Royal Academies of Germany

In 5 vols., 8vo, cloth; Vols. I-IV, Text, 1698 pages, net \$15.00, postpaid \$15.80; Vol. V, Index, about 200 pages, \$2.00

THE fourth volume of this monumental work was published in July of this year. The series is now complete except the Index volume, which is scheduled to appear during the autumn.

Here at last we have a corpus of translations of the historical documents of Egypt—the first to appear in any language. It is a result of ten years' incessant labor on the part of the author, who has copied with his own hand practically every Egyptian inscription in the collections of Europe, and many of those of Egypt. The translations, being thus directly based upon the originals, possess a degree of accuracy and authoritativeness never before attained in this field. To the Egyptologist and the student of antiquity the work is indispensable.

It would, however, be a mistake to suppose that these **Records** are of interest to scholars alone. The volumes are replete with information bearing upon the social, political, and domestic life of the people of the Nile valley thousands of years before our era, unrolling to the layman a series of fascinating pictures of this remarkable civilization.

The inscriptions are arranged chronologically, and span the period from 4241 to 525 B. C. Besides the English translations, introductory notes are given furnishing all the data necessary for the intelligent study of the texts. For ease of reference each document is divided into brief paragraphs numbered consecutively, and is accompanied by a series of running footnotes explaining obscure passages.

A separate index volume was announced provisionally in the first prospectus. This is now in an advanced stage of preparation and will be issued about January 1. It will contain the following separate indices: I, Divine Names; II, Temples; III, Kings; IV, Persons; V, Titles, Offices, and Ranks; VI, Geographical; VII, Miscellaneous; VIII, Egyptian; IX, Hebrew; X, Arabic; XI, Lepsius' *Denkmäler* and Text.

"Written by a scholar steeped in knowledge of the texts . . . a most valuable and meritorious collection."—*English Historical Review*.

"By the preparation and publication of these volumes the University of Chicago has laid all students of history under a debt of gratitude. . . . The typographical form in which these volumes come from the University Press is worthy of their intrinsic merit."—*The Outlook*.

"It is very fortunate that so competent a scholar has had the courage to undertake this task, and it is to the honor of the University of Chicago that this is being so admirably accomplished . . . of use not only for professed Egyptologists and Assyriologists, but for all students of early history."—*The Independent*.

"Professor Breasted's Berlin training and keen American scholarship make him the very man to give us the accumulated information of the schools, his own valuable contributions, and at the same time translations of a literary merit."—*World's Work*.

"Das Werk ist . . . zu einem nutzbringenden und vertrauenswürdigen Archiv der ägyptischen historischen Inschriften geworden. Es wird nicht nur dem Ägyptologen und Orientalisten willkommen sein, sondern vor allem auch dem Historiker und Philologen. . . . Dem Verfasser gebührt für seine sorgsame, mühevollen, die Wissenschaft fördernde Arbeit Dank und Anerkennung. Druck und Ausstattung sind vortrefflich ausgefallen."—A. Wiedemann, Professor in the University of Bonn, in *Wochenschrift für klassische Philologie*.

The Silver Age of the Greek World

By JOHN PENTLAND MAHAFFY, sometime Professor of Ancient History in the University of Dublin

490 pages, small 8vo, cloth; net \$3.00, postpaid \$3.17

STUDENTS of antiquity familiar with Professor Mahaffy's works—and who is not?—have come to look for a rare combination of scientific exactness and charm of style. These qualities are blended in a singular degree in the present volume. It is a history of the spread of Hellenism during the period from the Roman conquest to the accession of Hadrian. The book is designed to replace the author's *The Greek World under Roman Sway*, now out of print, "in a maturer and better form, and with much new material super-added." There are several entirely new chapters, and the whole work has been thoroughly revised in accordance with the "wider and more intelligent view of Greek life" that has grown up since the appearance of that volume.

"His book is the only one of its kind in English, and will always be read, under the old name or the new, with entertainment."—*The Nation*.

"Mahaffy's Werk vereinigt mit strenger Wissenschaftlichkeit die Vorzüge eleganter und anredender Darstellung. Es gibt ein äusserst anschauliches, durch zahlreiche Einzelschilderungen belebtes Bild der behandelten Kulturperiode."—*Neue philologische Rundschau*.

"He writes authoritatively, with full knowledge of the different sources for all the widespread development in which Greek influence was at work, with ample citation of the writers both ancient and modern, and of recent research and exploration. But more than this, he has been able to present his results in a deeply interesting manner."—*New York Times Saturday Review*.

"Durfte auf weitere Kreise anregend wirken; aber auch der Kenner wird mancherlei Belehrung finden."—W. Otto, in *Literarisches Zentralblatt*.

"Professor Mahaffy is not only a competent scholar, but he is also an interesting writer."—*The Outlook*.

"The religion and literature of the first century are described in a way that will make the book invaluable for classicists."—*Boston Evening Transcript*.

"Professor Mahaffy's books are always agreeable reading—'easy and pleasant' is the phrase that presents itself immediately to one's pen—and from their perusal much instruction is to be gained as well as much information. . . . The publishers have given the public a book of real value as to matter without neglecting the form."—*The Dial*.

The Progress of Hellenism in Alexander's Empire

By the same Author

162 pages, 12mo, cloth; net \$1.00, postpaid \$1.10

IN this little volume, containing six lectures originally delivered at the University of Chicago, the author presents, in his inimitable style, a compendium of a long and brilliant epoch in the development of human culture—an epoch which has occupied him for twenty years. In his preface Professor Mahaffy says: "The general reader, who desires to learn something of the expansion of Greek ideas toward the East, will here find enough for a working knowledge of a very complicated period. The specialist, who has devoted himself to some department of this field, will find here those general views of the whole which are necessary to every intelligent research into the parts. More especially, the student or teacher of Christianity will find here the human side of its origin treated in a strictly historical spirit." The first lecture, "Xenophon the Precursor of Hellenism," will be especially attractive to classicists.

"A small, but uncommonly rich and suggestive book."—*Chicago Evening Post*.

"The six lectures not only display profound learning and careful research, but are, as well, of deep interest to the scholar and to the general reader."—*Boston Evening Transcript*.

"On conçoit sans peine que ces conférences, où l'esprit et l'humour ne manquent pas, aient été très appréciées par les auditeurs de M. Mahaffy."—*Revue d'histoire et de littérature religieuses*.

"His lectures are farthest possible from the academic style, and are worthy of the man who wrote upon *The Art of Conversation*."—*The World To-Day*.

"They deal in an entertaining way with a great period, the one in which Greek culture was prepared for universal empire. Professor Mahaffy is well qualified to do justice to it, by long study and by possessing in an eminent degree the historian's high gift of sympathy with every serious human movement."—*American Historical Review*.

OTHER BOOKS BY PROFESSOR MAHAFFY

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THIS is a companion-volume to, and largely based upon, the foregoing, giving a vivid description of the educational, religious, and political situation in Ireland in the period covered.

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The Legislative History of Naturalization in the United States: From the Revolutionary War to 1861

By FRANK GEORGE FRANKLIN, Professor of History and Political Science in the University of the Pacific

318 pages, 12mo, cloth; net \$1.50, postpaid \$1.63

THE book traces in clear, concise fashion the course of public opinion, and the long and intricate debates in Congress, on the subject of naturalization. Incidentally a strong light is thrown on the inner history of the government in its first struggles after unification.

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"A decidedly useful monograph."—*The Outlook*.

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"To the historian, the jurist, the legislator, the student of American law, as well as to the general reader the book will prove a remarkably clear, concise, and able survey of the legislation which has been the outgrowth of the immigration and suffrage questions."—*Chicago Daily News*.

Hebrew Life and Thought: Being Interpretative Studies in the Literature of Israel

By LOUISE SEYMOUR HOUGHTON, Author of *Telling Bible Stories, Life of the Lord Jesus*, etc.

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IN this significant work the author has succeeded, to an extent granted to but few writers, in combining the caution and acumen of the analyst with the warmth of the devotee. The Bible student who wishes to be well informed, but who finds the paths of modern critical scholarship stony and unsafe, will welcome these soothing and instructive essays, in which throughout the cultural point of view has been emphasized.

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RARELY have two departments of study been so successfully and profitably combined as literature and sociology are in this volume. It is a treatment, on a somewhat novel but highly satisfactory plan, of a subject of interest alike to the sociologist and the student of literature.

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The Development of Western Civilization: A Study in Ethical, Economic, and Political Evolution

By J. DORSEY FORREST, Professor of Sociology and Economics in Butler College

420 pages, 8vo, cloth; net \$2.00, postpaid \$2.17

[To be issued about January 1]

THE author has a twofold object in the presentation of this work: first, the discussion of the methodology of sociology with special reference to the study of social evolution; second, the application of this point of view in the consideration of the development of European civilization. The first subject is discussed in the introductory chapter, thus separating the more technical part of the work from that which is more likely to prove of interest to the general reader.

The peculiarity in European society is found in the fact that Europe started off with ideals which had been presented to it by antiquity. The outcome of the Hebrew, Greek, and Roman civilizations is accepted as the ideal toward which mediaeval Europe is to strive; and this attitude of Europe toward the ideals inherited from the past is held to be the key to the explanation of the capital facts of mediaeval history. When the means had been developed by which these ideals were substantially realized, the Renaissance and the Reformation brought the Middle Ages to a close. The ideals of modern society must be evolved in the process of social life itself, and it is the problem of social philosophy to help to formulate and set before society the ends which are involved in existing institutions and movements. In the absence of ruling social ideals, there has been a tendency, now to make the political structure the end of social activity, now to regard economic prosperity as the ideal. The result has been a condition of ethical chaos. The author does not attempt to discover the social ends which are inherent in the nature of modern society, but he holds that some such study as he presents is a necessary preliminary to their discovery.

The title of the book will suggest comparison with Benjamin Kidd's *Theory of Western Civilization*; but while the two works are not in conflict, it will be found that this one presents an entirely different point of view and traverses very different ground.

The Sources of Tyndale's Version of the Pentateuch

By JOHN ROTHWELL SLATER

56 pages, 8vo, paper; net 50 cents, postpaid 53 cents

THE question as to what extent Tyndale used the Hebrew in his version of the Pentateuch forms the central problem of this inquiry. In parallel columns are printed passages from his translation side by side with the corresponding passages in the original Hebrew, the Septuagint, the Vulgate, Hereford's, Purvey's, and Luther's translations. The author arrives at the conclusion that Tyndale made his first draft from Luther's version, checking it constantly by the Hebrew, and keeping the Septuagint and the Vulgate within easy reach for constant comparison.

A Genetic History of the New England Theology

By FRANK HUGH FOSTER, Professor in Olivet College, Michigan

500 pages, small 8vo, cloth; net \$2.00

[To be issued early in January]

DR. FOSTER has attempted in this work to give a thorough history of one of the most interesting theological movements which America has seen, but which seems now to have come to a natural conclusion. Beginning with Jonathan Edwards, a series of original and earnest minds, to meet the various issues which arose both in the world of thought and in that of affairs, proposed certain new methods of defending the hereditary Calvinism of New England, which resulted finally in a distinct school of theology. While giving enough of the external history to furnish an account of the occasions and the setting of the various writings, the author is engaged principally upon the history of thought. The reader is introduced to the great works of Jonathan Edwards, the *Freedom of the Will*, the *Nature of Virtue*, etc.; and their origin and significance are pointed out. Large extracts from Edwards and the subsequent authors are given, so that the flavor of these ancient writers may be tasted as one reads. Hopkins, better known to the sociological world as the earliest opponent of the slave trade and to the literary world as the hero of one of Mrs. Stowe's novels, and Bellamy, the Great-Heart of the early history, appear here as great theologians; and soon the stage is crowded with a multitude of figures, larger and smaller, who took part in controversies, or discussed profound theological problems before their unlettered but intellectual congregations in rural parishes. The Unitarian controversy; the early work of Andover Seminary; the rise of a new school of theology in connection with Yale College; the great figures of the earlier part of the last century—Stuart, Woods, Dwight, Taylor; the later ones—Finney, Fairchild, Bushnell, Park, all pass before the reader in rapid succession. Their antagonists often meet with as full discussion as the members of the school.

As the first genetic history of the greatest theological movement which America has yet known, the book will command the attention of all students of our national thought.

Decimus Junius Brutus Albinus

By BERNARD CAMILLUS BONDURANT, Professor of Classical Languages
in the Florida State College for Women

100 pages, 8vo, paper; net 75 cents

[To be issued early in December]

MUCH light has been thrown in recent years, principally by the researches of German scholars, on the interesting period of Roman history in which Decimus Brutus lived and played his part. Aided by the results of these investigations, the author of the present monograph has prepared from the original sources a new treatment of the life of Decimus and its political and social setting. After sketching his ancestry and early life, Mr. Bondurant discusses in detail Decimus' career as a lieutenant of Caesar, as a leader in the conspiracy against the latter, and as an important figure in the crisis that followed the assassination of the dictator. The author, on the basis of his exhaustive studies, reaches conclusions regarding Decimus' motives and conduct essentially at variance with those arrived at by other historians, and thus furnishes a valuable and interesting contribution to the literature on the subject.

The New Appreciation of the Bible: A Study of the Spiritual Outcome of Biblical Criticism

By WILLARD CHAMBERLAIN SELLECK, Author of *The Spiritual Outlook*

424 pages, 12mo, cloth; net \$1.50, postpaid \$1.63

[To be published December 15]

DR. SELLECK is already widely known as a writer upon religious and biblical topics. His book *The Spiritual Outlook* has established his reputation for marked ability. The present work seeks to do three things: first, to state, briefly but clearly and accurately, the principal conclusions of modern learning regarding the Bible; second, to show the enhanced values, ethical and religious, which the Bible exhibits through the new views of its nature thus developed; and, third, to point out some of the practical ways in which it may be most helpfully used in consonance with such conclusions and such views.

The book is not intended primarily for scholars, but is rather an attempt by a working pastor to popularize some of the results of scholarship. The author has had in mind the needs of ministers, teachers, young people's classes and societies in the churches, parents, and thoughtful persons generally who really want to know the truth, but who want also a justly constructive interpretation and application of the truth.

The spirit of the work is frank and fearless, yet reverent and catholic; above all it is earnest, sincere, and positive. The writer puts something strong and helpful in the place of that which is passing away. His message is inspirational as well as educational.

The scope of the book may be seen from the chapter headings:

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The Bible in the Public School
The Bible in the Home
The Bible and Personal Culture
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The Aesthetic Experience: Its Meaning in a Functional Psychology

By ELIZABETH KEMPER ADAMS, Instructor in Philosophy and Education in Smith College

116 pages, 8vo, paper; net 75 cents

[To be issued early in December]

THIS book essays to discuss the aesthetic experience in terms of what is commonly known nowadays as "functional psychology," and to discover its relation to other types of experience already interpreted from this point of view. It subjects to criticism some recent popular theories of the aesthetic, and brings together material that has hitherto been presented in isolation.

BOOKS ON ARCHAEOLOGY

Egyptian Antiquities in the Pier Collection: Part I

By GARRETT C. PIER

27 pages of text, 23 plates (3 colored), royal 8vo, cloth; net \$4.00, postpaid \$4.15

IN the belief that the relics of antiquity preserved in private cabinets should be made available to all students of art and archaeology, the author in this handsome work presents the first instalment of an elaborate descriptive catalogue of the Egyptian antiquities in his own collection. The material is, as far as possible, arranged chronologically, and comprises relics of the earliest period of Egyptian history. In the plates are figured stone implements; amulets in ivory, bone, slate, etc.; some remarkable and unique specimens of Eighteenth Dynasty inlaid glazes (colored plates); and a very complete collection of historical scarab seals, glazed rings, and plaques.

The second part of this catalogue, which is in preparation, will contain a very complete collection of early jewelry (with photographs), dating from the Twelfth Dynasty down to Roman times, and some remarkable specimens of early glaze ware. Any future acquisitions by the author will be published in appendices.

Studies in Ancient Furniture: Couches and Beds of the Greeks, Etruscans, and Romans

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FOR the first time the subject of beds and couches in classical antiquity has here been treated exhaustively, on the basis of protracted and detailed first-hand study of the material collected in the various European museums. A thoroughly scholarly treatise, it yet is of interest not only to archaeologists, philologists, and students of Greek and Latin literature, but to collectors, designers, and manufacturers of furniture as well. Typographically the volume presents a highly attractive appearance.

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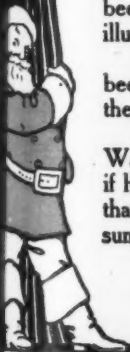
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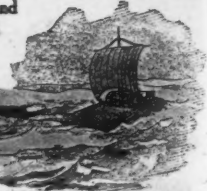
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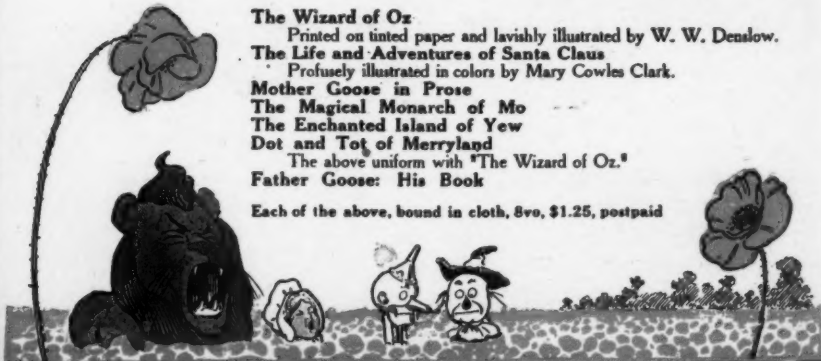
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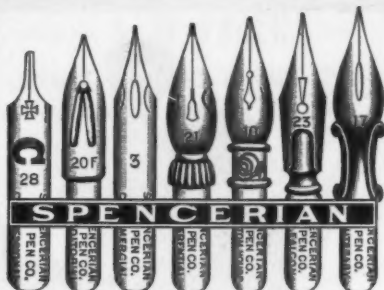
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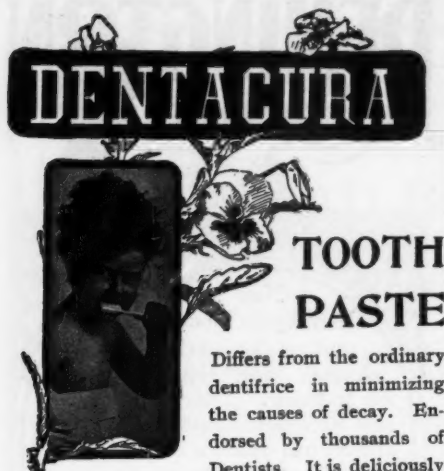
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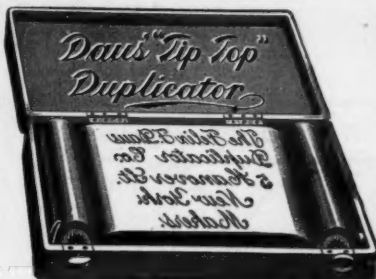
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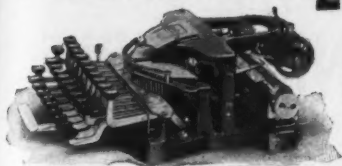
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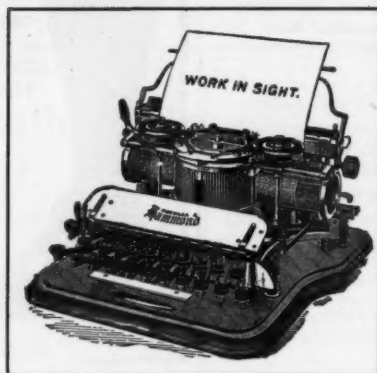
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